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COMMENTARIES

UPON

B O E R H A A V E's

A P H O R I S M S

CONCERNING THE

KNOWLEDGE and CURE of DISEASES.

BY

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KNOWLEDGE AND CURE OF DISEASES.

BARON VAN EWIJN.

COUNSELLOR AND THE PHYSICIAN.



THE
C O N T E N T S
OF THE
SEVENTH VOLUME.

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COMMENTARIES
UPON
BOERHAAVE'S
APHORISMS
CONCERNING THE
KNOWLEDGE and CURE of DISEASES.

CONTINUAL FEVERS.

§. 728. **T**HE most simple of continual fevers is the ephemera or diary fever, which runs through its beginning, increase, height, and declension, within the space of twenty-four hours. For its causes it acknowledges only a more violent motion of the humours arising from an error in some of the six non-naturals, being hardly ever attended with any morbid matter. It is known from the slightness of the causes, from a clean and good habit of body, with a mildness of the symptoms, a speedy crisis, the pulse returning perfectly to its natural state after the fever is off. The cure of it is easily performed by abstinence, rest, and dilution.

Continual fevers, namely, such as run through their course in one continued strain from the beginning to the end, are some of them observed to be joined with a considerable depravity of the solid and fluid parts of the body, produced either before or in the time of the fever; whence many of the functions are considera-

bly injured: and then they are called *continual putrid fevers*, concerning which we shall treat under the next title. But if the continual fever has no considerable change of the solid or fluid parts of the body observable, nor any great injury of the functions, it is then called a *SIMPLE continual fever not putrid*; which is never dangerous, but always salutary, unless treated by a perverse method of cure, so as to put on a worse nature, as will presently appear. But although these fevers may be justly called *continual*, yet they the least of all deserve the title of *acute*: for though they run through their course indeed swiftly, yet it is without danger; whereas, in order to denominate a fever *acute*, danger is required to be joined with a swift course. (See §. 564.)

It has been customary with physicians so to divide such simple continual fevers, whether putrid or not, as to call that fever an *ephemera*, which finishes its whole course within the space of twenty-four hours, running through in that space the four stages observable in every fever; namely, the beginning, increase, height, and declension. (See §. 590.) But if such a fever runs out to a greater extent, and does not confine itself to the space of twenty-four hours, it is not called an *ephemera*, but a *simple continual fever not putrid*. An *ephemera* properly signifies something limited to the space of a natural day; and hence this name is given to certain insects, which run thro' the whole course of their life within that space.

It is likewise evident at the same time, that by this definition we exclude the most acute fevers, which often kill a person in the space of a few hours; for such fevers do not arrive at their declension in that space of time, though they kill the patient before. Yet Cajus has been pleased to call the English sweating disease, which often killed the patient in the space of a few hours, by the name of a *pestilential ephemera*, because the sick perished within that space of time; and because they sometimes recovered by a sweat continued for twenty-four hours. But as it appears, from the description of the disease given by the same author, that

that though the patient was sometimes put out of danger by a sweat so long continued, yet great weakness and often other injuries of the functions still remained; and that even sometimes, the febrile matter not being sufficiently discharged by sweats, fevers of a very bad kind supervened. At the same time there was also a great and sudden injury of many of the functions; and therefore that pestilential ephemera belongs to the class of continual putrid fevers. But that diary fever, concerning which we here treat, is ranked among those which are continual and not putrid, and it almost terminates in health at the end of twenty-four hours time. But Dr Cajus has very well distinguished this disease from a salutary ephemera, by giving it the epithet of *pestilential*.

For its causes it acknowledges, &c.] An ephemera almost constantly arises from some manifest error committed in the use of the six non-naturals, insomuch that Galen^a would have this to be the principal sign of these fevers, namely, from their beginning always from some recent and evident cause. Thus, for example, an ephemera frequently arises from the quantity of food taken in being too great, or of too difficult a digestion, more especially in the weaker sort of people; that thus the vital motions being accelerated, the quantity or strength of the ingested aliments which resist the changing powers may be subdued. This most simple fever frequently arises after a crapula or surfeit of food, after a drunken fit, too much labour or exercise, violent passions of the mind, &c. in which there is hardly any thing more to blame but the more violent motion only of the humours, excited by such manifest remote causes in a body before healthy. And therefore it is evident, that there is hardly any morbid matter attends in this fever; or at least that which is present may be soon and easily subdued by the fever, so as to be expelled from the body, or become no longer offensive. For, as we said before at §. 594, no 1. all that which has degenerated from the laws of health in the fluid or solid parts of the body, whether pre-

B 2

existing

^a De Febribus, lib. i. cap. 8. Charter. Tom. VIII. p. 116.

existing before or produced by the fever, is usually comprehended under the name of the *material cause* of the fever. Since therefore in an ephemera no such matter pre-existed, it is evident, all that can be called the matter of this fever proceeds from a fault in the six non-naturals: and since the matter is so conditioned, that it may be corrected, or at least expelled from the body within the short space of a natural day, the reason is evident why it is said in the text to be hardly ever attended with any morbid matter.

It is known from the slightness of the causes.] Although these fevers usually begin from evident causes, and are easily enough curable, yet there seems to be a little more difficulty in the diagnosis or knowledge of them. For Hippocrates ^b observes, (as we said before upon another occasion, §. 564.) that it is difficult to distinguish diseases which are to be judged of long continuance, from those which will cease in a short time, since they are often much alike in the beginning, namely, slight and without bad symptoms. Hence ^c Galen pronounces, that a certain diagnosis of an ephemera is sometimes altogether impossible to be attained; but in general he concludes, that it is not difficult if one rightly attends to every particular: and he adds, that he had ordered even a thousand people whom he had known afflicted with this fever, to return to their usual employment after the first accession of the fever was over, and they had been bathed and moderately fed, acquainting them that they were not to have the fever again; and that the event has proved the truth of the diagnosis. But slightness of the causes is justly ranked among the signs of a diary fever: for although, as we lately observed, this fever usually arises from a manifest fault in the six non-naturals, yet if the error committed is egregious, a much longer and more dangerous fever may arise from thence; as is evident from what was said of the causes of fevers at §. 586.

From a clean and good habit of body.] For if a fever should be raised, even from a slight error in the non-naturals in a cacochemical body, it may be protracted

^b In Prognosticis, Charter. Tom. VIII. p. 665.

^c De Febribus, lib. i. cap. 1. Charter. Tom. VII. p. 116.

tracted to a great length, when it would have been but of short duration in a pure and healthy body: and even sometimes a slight fever may be of the most dangerous consequence, as when it puts in motion atrabiliary humours, a sharp scorbutic acrimony, or a ropy glutinous matter collected and almost stagnating in leucophlegmatic people; for it is sufficiently evident, that from these humours being put in motion by a fever, a great many mischievous consequences may ensue. And hence, when epidemical diseases spread, there is always danger, lest the fevers raised by other causes should rank among this class. Almost all the authors who have written upon the plague testify, that, in a raging pestilence, if people are taken with other diseases, they soon degenerate into the plague^d. The like is also observed sometimes in other epidemical diseases. Galen^e well observes, that running or other violent exercise, intemperance, cold, &c. hardly produce a violent disease from their own nature; but if a fever arises from such cases, it will be of the kind of diary fevers: but when the body is pre-disposed to other diseases, then the hitherto latent disorder is put into action by these causes, which he therefore calls evident or apparent.

Mildness of the symptoms.] We judge of the magnitude of the symptoms from the injury of the functions; since therefore a diary fever owes its origin only to slight causes, the body cannot be so changed by those causes as to receive any great injury of its functions. For, as Galen says, the magnitude of any disease is proportionable to the receding of the parts from their natural state^f. When therefore great injuries appear in the natural, vital, and animal functions, or if great alterations are made in the excretions of the body either by urine, stools, &c. we know then that the fever attending cannot be an ephamera; since such numerous and weighty symptoms cannot be produced from so slight a disease.

B. 3.

From

^d Diemerbroeck de Peste, cap. 5. p. 10. Thucydides, lib. ii. et apud alios passim.

^e Commentar. 4. in librum Hippocrat. de victu in morbis acutis Charter. Tom. XI. p. 178.

^f Method. Med. ad Glaucon. lib. i. cap. 1. p. 345.

From a speedy crisis.] In the comment to §. 587, where we treated of a Crisis, we made it appear that this word is used in various senses, and that sometimes it intends the solution or termination of a disease; which last, although it may be joined with some sensible evacuation, nevertheless happens without any symptoms and disturbances preceding the crisis. And in this sense an ephemera may be said to have a speedy crisis: for generally, when this fever is in its declension, it terminates in a moderate sweat; more especially when it arises from an obstructed perspiration, which is frequently the case: or when it arises from food taken in too great a quantity or of too difficult a digestion, a slight vomiting or evacuation by stool frequently put an end to it. But this sign best of all distinguishes an ephemera from other continual fevers, which however mild run out to a greater length. For an ephemera, terminating in the space of a natural day, arrives at its state or full height before the twelfth hour, from whence it gradually declines, and soon after all the symptoms which accompany the fever entirely cease. This has been remarked by Galen, when he says, *But if a pain falls into the head or any other part, and it no longer continues, or if the patient easily bears the disease, it is one of the strongest signs of an ephemera, by which it is distinguished, agreeable to constant observation, from other fevers, as if it was marked with a particular seal*§.

The pulse returning perfectly to its natural state after the fever is off.] By this sign Galen affirms he was able to distinguish an ephemera from the fits of intermitting fevers. For an ephemera being ended, he says, the motion of the arteries immediately resembles in every respect that which is observable in health; whereas the pulse never returns to its natural state in any other fever, even though the space of time betwixt the end of one fit and the beginning of the next is very

§ Et si capitis aut alterius cujusdam partis dolor simul insiderit, neque ille amplius manet. Si vero et æger facile morbum ferat, maximum illius (ephemeræ) signum est, quod velut impressum sigillum præ aliis omnibus febris mansuetudinem demonstrat. *Method. Med. ad Glaucon, lib. i. cap. 2. p. 347.*

very long, as in tertians and quartans; for in these there always remains the sign of a fever in the pulse^b. For generally there remains some weakness of the pulse after the termination of the fit in intermitting fevers; and even frequently, though the patient leaves his bed after the sweat is over, the pulse is still perceived to be something too quick. The symptoms also which accompany intermitting fevers, such as lassitude, pain of the head and loins, &c. are seldom so entirely removed as they are after the ending of an ephemera. This diagnosis is confirmed if intermitting fevers are not common at that time; for then there is less reason to suspect a return of the paroxysms. But in the mean time it must be confessed, that the first paroxysm of a mild vernal tertian may be mistaken for an ephemera; as it often continues for a few hours, and goes off with a gentle sweat; so that within the space of twenty-four hours all the functions are perfectly restored. But it is also certain, that an error in the use of the six non-naturals generally precedes an ephemera, and of which it is the cause; but also intermitting fevers are sometimes preceded with such a cause. Moreover, it sometimes happens, though rarely, that an ephemera is raised even without any previous known error committed in the six non-naturals. I know some who are seized two or three times a-year with an ephemera, without any previous notice; but only as it would seem from an accumulation of the bile, which being discharged by vomiting, the fever immediately ceases, and all the concomitant symptoms vanish. If therefore there is the least suspicion of an intermitting fever, it is best not absolutely to predict that the disease will terminate with only one paroxysm: But rather one should intimate, that the fit of an intermitting fever will perhaps return again, and that such remedies should be used as may prevent it. For thus the honour of the profession, and the reputation of the physician, may be the best supported, without any detriment to the patient.

The cure of it is easily performed, &c.] For this
slight

^b Ibidem, cap. 2. p. 347.

flight disease ceases spontaneously, and in a short time, provided it is not irritated by a perverse treatment so as to turn it into a worse disease. For the general cure of fevers (§. 598.) required four things: namely, The preservation of life and health in the patient; a correction or expulsion of the acrid irritating matter; a dissolution and expulsion of the febrile lentor; and lastly, a mitigation of the symptoms. But, in an ephemera, life is neither in danger, nor is there any fear of the patient's strength being exhausted in so short a space of time: and as this fever has hardly any matter, if any acrid attends, it will be soon weakened or expelled from the body; or if there is a slight lentor, it is dissolved by the fever itself, and expelled from the body by a gentle sweat; and as to the symptoms which attend an ephemera, being always slight, there will be no occasion to mitigate them, for soon after they disappear together with the fever itself. Abstinence therefore, with rest of body and mind, and diluent liquors, will suffice for the cure. But ^hCelsus makes abstinence of two kinds; one wherein the patient takes nothing at all; the other in which he takes nothing but what he ought. For although, in so short a disease, a body before healthy might easily support abstinence; yet such a moderation of it only will suffice, as allows the patient to take what is convenient, and not too much. A decoction of bread, barley, oats, milk diluted with water, whey, and the like, will here suffice for nourishment; while the same are likewise very useful to dilute all the humours. But since in this fever nothing attends but too violent a motion of the humours and their containing vessels, therefore rest of body and mind will here afford the best remedies; as we affirmed in treating of the cure of Diseases arising from an Excess of the Circulatory Motion, (see §. 103 to 106.) Moreover, this simple method is the more to be praised, as it is useful in the beginning of all diseases; and therefore if one should be deceived in the diagnosis, and a fever of another kind should follow instead of an ephemera, the use of this

this method will never do harm: for, as soon as sickness is feared, “ the best of all remedies are rest “ and abstinence; and if any thing is taken to drink, “ water, &c. for by these frequently a violent disease at hand is expelled ¹.” That celebrated fasting therefore for three days, which certain physicians recommended in all diseases, is justly condemned by Galen^k, as rendering fevers more severe. He even says, that men are so importunate with their assistances from art, that they rather occasion than cure disorders; or rather, as he chuses to speak, “ they bring on diseases “ made by the hand.” For when Asclepiades, in the first days of the disease, judged the patient’s strength was to be weakened by strong light, watchings, and intense thirst, insomuch that he would not permit the mouth to be washed during the first days^l; it is sufficiently evident, that a salutary ephamera might by such a perverse treatment be converted into most dangerous disease. The same is also true if incipient diseases are attacked immediately with purges, vomits, or sudorifics. For, as Celsus observes, *Many are deceived who hope immediately to remove the languor on the first day of the disease, either by exercise, bathing, forcing stools, vomits, sweats, or by urine; not but these are sometimes useful, and do no harm; but because they oftener deceive the expectations, and because the cure may be performed without any danger by abstinence only*^m. The simple method therefore here proposed, is the only safe one in an ephamera, and in other incipient fevers. What Galen has said concerning a diary fever, in his eighth book of the Method of Healing, deserves to be read, as he there lays down the whole history and method of curing this feverⁿ.

§. 729. **I**F this fever (§. 728.) is protracted for several days, it is called Continual, but not

ⁱ Ibid. lib. iii. cap. 2. p. 114.

^k Lib. i. Method. Med. ad

Glaucon. cap. 2. Charter. Tom. X. p. 346. ^l Cels. lib. iii. cap. 4. p. 118.

^m Plurimique falluntur, dum se primo die protinus sublaturus languorem, aut exercitatione, aut balneo, aut coacta dejectione, aut vomitu, aut suadationibus, aut vino sperant: non quod non interdum id incidat, aut non decipiat; sed quod sæpius fallat, solaque abstinencia sine ullo periculo medeatur. *Ibid. cap. 2. p. 114.* ⁿ Charter. Tom. X. p. 178, &c.

not putrid: the causes, signs, and treatment, are the same; but it more especially requires plentiful bleeding and cooling medicines.

If the cause of such a fever is something more than usually obstinate, so that it cannot be subdued or expelled from the body within the space of a natural day, the disease will be protracted, and therefore no longer called a *diary*, but a *continual fever*: But since the cause was slight, and no malignant symptoms attend, nor any signs appear in the urine, stools, sweats, &c. denoting any great degeneration of the humours from their natural state, therefore it is called *continual*, or a *synochus not putrid*; in order to distinguish it from a *putrid synochus*, concerning which we shall next treat. Some authors^o have indeed called this fever by the name of an *ephemera of several days continuance*; but, as it would seem, they distinguish it by a less proper title. *The nature therefore of such fevers is the same with that of the ephemera or diary fever, though they have not the same name, says Galen*^p. Thus we observe a diary fever in many people after a drunken fit, while others again have a fever which continues two or three days from the same cause. Such protracted diary fevers, or continual but not putrid, were those very mild fevers which Hippocrates mentions “to have been ushered in with the most secure signs, terminating on “the fourth day or sooner^q.”

The causes therefore, signs, and cure, will be the same here as in an ephemera. But because the increase of the circulatory motion is protracted to a greater length in a synochus not putrid, and as that is usually accompanied with heat, there is just reason to fear lest the aqueous parts being dissipated, the other particles of the blood may begin to cohere together and acquire an inflammatory tenacity; while at the same time the saline and oily parts of the blood are rendered more volatile (see §. 100, and

^o Forestus, Tom. I. p. 11.

^p Febribus ergo talibus natura quidem eadem est, quæ diariis, nomen autem non idem. *Galen, Method. Med. lib. ix. cap. 1. in fine. Charter. Tom. X. p. 203.*

^q In Prognostic. Charter. Tom. VIII. p. 663.

and 689 :) and therefore from such a fever we may expect an inflammation of the viscera, an acrimony of the humours, and many other bad consequences; whence a continual fever not putrid may turn into one that is putrid. For this reason plentiful bleeding is here convenient, as the most efficacious remedy for a present inflammation, and as the safest preservative against a future inflammation which is feared; for, this being performed, the fever is often instantly allayed, as Galen^r proves by a very fair instance. For in a young man who had for thirty days omitted his usual exercise, and afterwards exercised himself more violently than usual, there was a fever with much heat; but his pulsations were equal, large, quick, and strong, the heat was not burning, nor the urine much degenerating from its natural state (all which are the signs of a synochus not putrid): but in the mean time the patient appeared red, full, and plethoric. Yet bleeding was deferred; partly, that the nature of the fever might first appear; and partly, from the disagreement of physicians called into consultation, with respect to the time of opening a vein, and some other particulars, whereby it was put off even to the third day. There was now an intolerable heat in the patient, a tension of the whole body, a throbbing or beating of the head, with troublesome watchings: wherefore Galen took care to have him bled even till he fainted away; and by that means directly extinguished the fever, insomuch that some of those who stood by said, laughing, that Galen had by this bleeding killed the fever: for soon after, when the patient had first taken some light nourishment, he fell into a profound sleep, with a gentle sweat, and perfectly recovered. But it seems very probable that the disease would have been sooner relieved, if the patient had been bled on the first day.

But the use of cooling remedies is deservedly recommended, which in this case are diluent and laxative, dissolving the thickness of the humours, and opening obstructions. Honey, and the preparations made with it, nitrous medicines, saponaceous acids diluted with
plenty

plenty of water, or a decoction of barley, oats, roots of viper-grafs, and the like, will fatisfy this intention; while at the fame time they are averfe to the putrid degeneration of the humours here to be feared. See what has been faid at §. 691, and the following, concerning the cure of febrile heat.

Of Continual PUTRID FEVERS.

§. 730. **I**T has been customary to call that continual fever a Putrid Synochus, which arifes from the more violent caufes of a fimple inflammation; fuch as an obftruction of the viscera, a ftopping of up the pores of the fkin and almoft all the capillary veffels; but with an acrimony fharper than the two preceding fevers, and frequently of a fingular kind.

Whenever the humours of the body degenerate from their healthy ftate, either before the fever, or by the fever itfelf, in fuch a manner that they become unfit for a free and eafy circulation through the veffels, it is called a continual *putrid* fever; differing in this refpect from an ephemera and fimple synochus *not putrid*: in which laft there was hardly any matter, and the humours were good conditioned, offending only by their more violent motion; whence that motion being quieted, either fpontaneoufly, or by art with plentiful bleeding and other convenient remedies, the difeafe often ceafes almoft without any fenfible evacuation; or if any parts of the humours are changed, they are commonly difcharged from the body by a moderate fweat, or only by an increafed perfpiration; and thus health returns in a fhort time. But, moreover, when thefe fimple fevers are treated by an improper method of cure, the humours being changed from their natural difpofition may degenerate into a putrid synochus, as is evident from what has been faid before.

Galen^a tells us, That it is a putrid synochus, *ubi in omnibus*

omnibus vasis, ac potissimum maximis, æquabiliter succi putrescunt; “when the juices equally corrupt or putrefy in all the vessels, but more especially in the “larger.” But the term *putrid* in this fever, has been offensive to many, who have judged it hard that the humours should putrefy in a person yet living: hence Trallian remarks, That there are not wanting physicians who affirm universally, that a fever never arises from putrefaction, telling us that the humours are not putrefied, but burnt up in the veins^t. But by the term *putrid* in fevers, the ancient physicians did not understand such a corruption as we observe to arise spontaneously in dead bodies, but only a considerable degeneration of them from their natural and healthy conditions. For Galen^u defines the nature of the putrid, *quod sit mutatio totius putrescentis corporis substantia ab externo calore*, “to be only a change of the whole substance of the putrescent body by external heat.” But by *external heat* he does not understand that which is applied externally to the body, as is evident from what follows in the same place; but that which is different from the natural heat, whereby the healthy body is supported. Hence also it is evident, that by putridness he understands a change of the putrescent body, but not that corruption of it which is perfect, and may be properly called putrefaction. This appears still more evidently in another place^w, which we mentioned before upon another occasion in the comment to §. 387, and 593. For he there remarks, that a putrefaction of the humours made in the vessels, is like that which we observe in inflammations, abscesses, and other tubercles; and then adds, that this putrefaction varies according as nature overpowers the disease, or is herself overpowered. For when nature overcomes, as in inflammations, matter is formed; so in the humours of the veins and arteries, what subsides in the urine answers to pus or matter. He then adds the following, which ought well to be observed: *But this*

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putridness^t Lib. XII. cap. 2. p. 684.^u Method Med. lib. xi. cap. 8. Charter. Tom. X. p. 254.^w Galen. de Febrium Differ. lib. i. cap. 7. Charter. Tom. VII. p. 115.

putridness is not simply a putrefaction, but it has also something of concoction in it; for the concoctive faculty of the vessels still remaining, the putrescent humour is then reduced to such an alteration *. But according to the different degeneration of the putrescent humours, and the greater or less weakness of the concoctive faculty, he acknowledges different degrees of this putridness. It is therefore evident enough, that by the term *putrid*, Galen would be understood to mean a considerable degeneration of the humours from their natural or sound state; and that he called those fevers putrid, in which there is such a *degeneration* of them, though there is not a *putrefaction* properly so called.

But that change of the humours which happens in continual fevers, inclines them to a *putrefaction* properly so called. For it was demonstrated at §. 80, that the healthy humours being left to themselves, do, by heat and stagnation, as also by violent motion, acquire the nature of incipient putrefaction: and that this natural propensity to putrefaction is increased by augmenting the heat and motion, was proved before at §. 84; concerning which, see also what has been said at §. 100, 587, 689. The urine in these diseases is acrid, red, and sometimes fetid; and the intestinal fæces have often a most intolerable smell; the sweats also are ill-smelling; all which afford the signs of at least an incipient putrefaction. But it is very rarely that the circulating humours in diseases become truly putrid within the vessels, since generally death happens, from a destruction of the most tender vessels and threads of the brain by the more acrid and violently moved juices, before they are arrived to so great a degree of corruption; see what has been said on this subject in the comment to §. 89.

Those fevers are termed *continual and putrid*, wherein the humours degenerate much from their natural and healthy state, and at the same time incline to putrefaction; and hence there are various degrees of malignity.

* Atque hæc putredo non simpliciter putredo est, sed etiam aliquid concoctionis habet: manente enim adhuc concoquendi facultate vasorum, putrescens tunc humor ad talem alterationem deducitur. *Ibid.*

lignity observed, according to the greater or less degeneration of them. But although there is seldom a true putrefaction of the humours in these fevers, and there is only observed such a putrefaction in the fæces collected in the warm and moist intestines, where by accession of air they are very easily corrupted; yet in these diseases, even in the humours, there is always a great *propensity* to putrefaction.

Which arises from the more violent causes of a simple inflammation, &c.] By simple inflammation is here understood, when some particular part of the body is taken with a phlegmon from a topical cause; which, although the body is healthy in other respects, is often attended with a fever, for the reasons given before in the comment to §. 382, n^o 8. For when the inflammatory matter of a preceding fever is sometimes deposited upon any particular part of the body, it occasions a pleurisy, quinsy, frenzy, or some other inflammatory disease, together with a fever; because then the vessels being obstructed by the inflammatory matter in the part affected, hinder the free circulation of the humours, the velocity of which is increased generally through the other free and pervious vessels: And yet cannot the fever which attends these diseases be always properly called putrid, since they are often resolved by a mild resolution; and sometimes, at least in the beginning of these diseases, or when they are not very violent, we do not observe so great a degeneration of the fluids from their natural state. But if the whole mass of blood by an inflammatory tenacity becomes less easily pervious, so as to pass difficultly thro' the smallest extremities of the arteries, it will begin to hesitate in the vascular and intricate texture of the viscera; the cutaneous vessels being stuffed up and distended by the impervious humours, will compress the adjacent smaller vessels; whence all the *capillary* vessels, thus called from their minuteness, will be obstructed, or at least they will not transmit the less pervious humours without difficulty; hence will follow a violent attrition and heat, which are enumerated among the signs (in the following aphorism) of

a continual putrid fever. Since therefore there is so great a degeneration of the humours attending this continual fever, it is called *putrid* for the reasons before-mentioned.

But with an acrimony sharper than those preceding, and frequently of a singular kind.] Sometimes also an acrid stimulus applied to the body, either by what is taken in, or from the degeneration of humours already in the habit, excites a fever, or else continues it when excited, as is evident from what was said at §. 586, where we treated of the particular causes of fevers. But this acrimony is sometimes altogether of a singular kind, and cannot be reduced to any known species of acrimony, manifesting itself only by its effects, producing putrid fevers, and frequently a wonderful degeneration of the humours at the same time. When the contagion of the small-pox is applied to a healthy person, what a putrid fever does it sometimes raise! and the same also appears in the plague, and other malignant fevers which spread epidemically. For altho' these morbid or contagious effluvia, which by a wonderful stimulus are able to produce putrid fevers, are not discernible by any of the senses, and therefore we cannot obtain a distinct idea of them, as they only manifest themselves by their effects; yet the best authors have remarked concerning these, that when the blood is inspissated by their force, or by the increased motion which they excite, there ensues an inflammatory tenacity of the humours, by which the viscera are obstructed, and almost all the capillary arteries are blocked up. But it has appeared from the most faithful observations, that sometimes putrid fevers, produced by such stimuli, have brought on a very considerable degeneration of the humours, but very different from that before-mentioned; namely, when the blood, and perhaps the rest of the humours thence separated, are rather attenuated; and that often to so great a degree as to escape thro' various passages of the body, with a sudden and great loss of strength. Thus in the comment to §. 86, it was observed, that, in the plague of Breda, the blood of the infected appeared livid

livid and fetid, without congealing; and the same author^o remarks, that the patient sometimes perished in the space of a quarter of an hour, with a profuse bleeding at the nose. Wepfer^p has observed, that, in malignant and petechial fevers, profuse and dangerous hæmorrhages often follow from the nose, uterus, kidneys, &c. because in these petechial fevers, the blood being highly attenuated, very fluid, and hot, opens the extreme mouths of the arteries. And he found that fish-glue was of use here by incrassating the blood. And when he opened a vein in the beginning of such a fever in a common-council man, the blood extracted, after standing a long time at rest in any place, was little or nothing concreted; and he assures us, that he afterwards frequently observed the same thing. In the worst kind of the small-pox, as we shall hereafter declare in the history of that disease, there often happens a fatal hæmoptoe; or, what is almost equally pernicious, a making of bloody urine: which is remarkable in the first stage of this disease, perhaps from the same cause. Hence a celebrated author^q very justly distinguishes these febrile miasmata into two kinds; from their effects, namely, inasmuch as they either incrassate or dissolve our humours; and hence a great difference must take place in the cure of these diseases, as is sufficiently apparent. For although an increased velocity of the circulation §. 100; and the febrile heat §. 689, occasion an inspissation of the blood by dissipating the most fluid parts; and though an expression of the most liquid juices, and an inspissation of the rest, are enumerated among the effects of a fever, §. 587; yet it is nevertheless true, as is evident from what was lately said, that sometimes wonderful stimuli, altogether of a singular nature, being put into action together with the fever, dissolve the humours by a poisonous force, and dispose them to putrefaction; whence often, in the very beginning of such diseases, a great quantity of the

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^o Van der Mye de morbis Bredanis, p. 8.

^p Cicutæ Aquat. Hist. et Noxæ, cap. 5. p. 52.

^q Lobb of the Small-Pox, in the preface, p. xv.

most putrid fæces is discharged by stool; and the like putrid smell observed in the urine, breath, sweat, &c. manifestly denote such a degeneration of the humours.

Of this nature seems to have been that disease which Hippocrates describes under the name *typhus*^r; and which he says invades, when the bile is moved thro' the body when the dog-star arises in the summer-time. For in this disease he observed, that immediately an intense burning was felt, together with an acute fever; and immediately the strength was exhausted with a weakness and heaviness of the body, and such an impotency of the legs and arms that they were of no use to the patient. He also remarks, that the belly was disturbed with violent grippings, and ill-smelling stools were discharged. But that there was a putrid dissolution of the humours in this disease, is confirmed from the remedies which he recommends in the cure: For he orders cold and thin suppings to be given, black austere wine to be drank, or, if that is not so proper, white austere thin wine. Moreover, he advises the application of linen cloths dipped in cooling liquors to those parts of the body where the greatest heat is principally perceived. But all these are only of use when too great a dissolution of the humours attends; for when an inflammatory thickness prevails in the blood, both austere and actually cold liquors are mischievous, as is evident from what was said of these in the cure of an inflammation. Of this kind seem to have been those acute fevers, in which the ancient physicians recommend the drinking of cold liquors as extremely useful. For Galen tells us^s, that the two greatest remedies in the cure of continual fevers, are bleeding, and the drinking of cold liquors. But in the same chapter he observes, that these were more especially useful to those who had been accustomed to the drinking of cold liquors; and adds at the same time, that they are mischievous, where any principal part is occupied by a phlegmonous, œdematous, or schirrhous tumour: For in these cases (he observes)

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^r De Internis Affectionibus, cap. 41. Charter. Tom. VII. p. 667.

^s Method. Med. lib. 9. cap. 5. Charter. Tom. X. p. 209.

it affords considerable relief for the present, inasmuch as it extinguishes the fever already kindled; but the cause still remaining, another fever must at length of necessity be kindled again, which generally proves more difficult than the former, inasmuch as the body is condensed by the cold drink. And in the same place he enumerates many bad consequences arising from cold drinks. They seem therefore to be only useful when there is no inflammatory thickness of the humours, but rather an inclination to too great a dissolution and putrefaction. See also what has been said, concerning the drinking of cold liquors, in the comment to §. 640, no 1. Hence the reason is also evident, why, sometimes, in acute putrid and continual fevers, those acid spirits of sea-salt, sulphur, nitre, and vitriol, which are obtained by the force of fire, are so serviceable, since all of them coagulate the blood upon being mixed with it. For the putrid dissolution of the humours is removed by such medicines, and the future dissolution is prevented. Hence Sydenham has observed, that nothing proves more useful in the confluent kind of the small-pox, than the mixing of spirit of vitriol in the patient's common drink, as we said before in the comment to §. 88, no 2.

§. 731. **T**HIS fever is known by a heat even uneasy to the finger or touch of the physician; by a pulse not only feverish, but also unequal and irregular; from the urine being thick, red, turbid, and crude without sediment: from a hot and sanguine constitution, age, and habit of body.

It is now our necessary business, to consider those signs by which a continual putrid fever may be known when present, and whereby it may be distinguished from the other kinds of fevers. But it is more especially difficult, in the beginning, to distinguish such a continual fever properly so called, from a continual remittent which abates and renews its force by turns:
for

for these fevers are very much alike in their beginning; and in both of them the humours frequently degenerate much from their healthy state, and are attended with severe symptoms. Hence Galen^t, describing the case of a young man afflicted with a putrid synochus, tells us, that he dared not determine the disease before he saw on the third day that no new fit or accession came on, although he suspected even on the second day that the fever was a putrid synochus. But although this difficulty attends the diagnosis of these fevers, yet the general method of cure agrees with them both; and therefore it will not be concealed from a skilful physician what is necessary to be done, and especially with regard to keeping the fever under a due moderation, that it neither become too violent, nor prove too sluggish. Hence Galen, in the case before-mentioned, did not doubt but that by a bleeding continued till the patient fainted, the febrile motion would cease on the second day, when he first saw the patient; although he confesses, that till the third day he was not certain that the disease was a putrid synochus.

But a putrid synochus is distinguished from one that is not putrid, and from an ephemera, by the following signs.

By a heat uneasy even to the finger or touch of the physician.] Galen places the principal sign of putrid fevers in their heat: For (says he) they have nothing at all of gentleness or moderation, nor do they resemble an ephemera; but, as the best physicians have pronounced before us, the heat is rather sharp, so as to injure or seem uneasy to the touch, in the same manner as smoke to the eyes and nose^u. In other fevers, though there is an intense heat perceived immediately upon the touch, yet it is soon overcome by the heat of the finger touching, and soon after seems less: but in these continual putrid fevers, the heat often seems mild in the beginning, when the patient's hand is felt; yet the heat is increasing in a manner every moment, so that it pricks or excites an uneasiness to the touch
of

^t Ibid. cap. 4. p. 206.

^u D. Febr. Differ. lib. i. cap. 9. Charter. Tom. VII. p. 119.

of the physician, as if the heat came from a deep part of the body: Which is likewise well remarked by Galen, when he says, *But in the beginning of the accession or fit of the fever, when the heat is as yet suffocated, and the excrements are in a manner parched up, it cannot be immediately discovered by the hand applied to the patient; but, upon a longer examination, the forementioned heat seems to arise as it were from a considerable depth*^w. They who have once felt the pulse of such patients can better perceive and discover this difference of the heat (for it perhaps cannot be distinctly described by words); and at the same time the reason may be understood, why Hippocrates says, *These fevers are indeed pungent, or uneasy to the touch, but the others are mild; some are not violent, but increase; some again are acute, but subdued by the hand itself*,^x &c.

But since a putrid synochus frequently owes its causes to those of a simple inflammation increased, as we said before under the preceding aphorism; namely, when an inflammatory thickens attends throughout the whole mass of blood, and when such blood is moved rapidly through the vessels by the increased motions of the fever; the reason is sufficiently evident, why this pungent heat is in a manner every moment increasing; concerning which see what has been said at §. 675. *et seq.* where we treated of the causes of febrile heat. But it is to be observed that sometimes the extremities are cold in the worst kind of these fevers, though at the same time there is the sense of a burning heat perceived by the patient about the præcordia: but this fatal sign seldom appears in the beginning of these fevers, (see the comment to §. 698.) as this only happens when the patient's strength is exhausted or broken, so that the heart cannot propel the blood to the extreme parts of the body; or that the blood is so condensed

^w Verum inter initia accessionum (dum adhuc suffocatur calor, et intus accenduntur excrementa) non statim admoventibus manum dignoscitur; sed diutius immorantibus prædictum caloris genus quasi de profundo emergit. *Ibid.*

^x Febres, hæc quidem manui mordaces, illæ vero mites; quædam non mordaces, incrementes vero; nonnullæ acutæ, sed ab ipsa manu detectæ, &c. *Ibid. cap. i. p. 107.*

densed that it can only circulate through the larger vessels near the heart; but in the mean time an intolerable burning heat is perceived about the vital viscera by the patient, which is a sign sufficiently denoting the presence of a putrid synochus.

By a pulse not only feverish, but also unequal and irregular.] By this sign also a putrid synochus is well distinguished from an ephemera or a simple continual fever: for in these the pulse is strong, equal, and not much exceeding in quickness the motion observable in the healthy pulse. But in a putrid continual fever, there is a greater quickness of the pulse, though it is unequal both as to strength and velocity. This inequality of the pulse proceeds either from the blood, by an inflammatory thickens, beginning to hesitate or stagnate about the narrow extremities of the arteries; or, at least, not passing through them without difficulty, it destroys the equability of the circulation; or likewise when a particular kind of acrimony being the cause of these fevers, wonderfully disturbs the whole system, (as we said before under the preceding aphorism); whence often great weakness immediately follows, with a trembling of the pulse, and other bad symptoms. This variation of the pulse in these fevers is called by Galen ^y the compression or depression of the pulse, namely, when the pulse appears very small and unequal at the beginning of the coming on of the fever. But he does not make this an inseparable sign of these fevers; and yet he says, that when it does attend it is proper to these fevers, unless the pulse should become such from some other symptom: for when, *e. g.* a gnawing humour is collected about the upper orifice of the stomach, the pulse often appears small and unequal; which change of the pulse ceases immediately when the matter lodged about the stomach is expelled by vomit. But this inequality of the pulse only may deceive one in the diagnosis; for it is sometimes observed to be such in the cold fit of intermitting fevers. Moreover, there is often observed a wonderful disturbance in the pulse

^y De Febr. Diff. lib. i, cap. 9. Charter. Tom. VII. p. 117, 118.

in and about the time of the crisis, as we observed in the general history of fevers.

From the urine being thick, red, turbid, and crude without a sediment.] The urine is a watery lixivium mixing with and washing out from the blood every thing that is dissolvable in water, which it exhibits out of the body, passing by the tubes of the kidneys into the pelvis, and thence into the ureters and bladder²; and therefore from the urine may be had the best sign whereby to know the condition and alterations of the blood and other humours. But since in a putrid synochus there is a great degeneration of the humours from their healthy state, therefore there ought to appear a considerable change in the urine, different from what is observable in healthy urine. For healthy urine (as Galen^a well remarks) affords a standard or rule with which diseased urines ought to be compared, in order to see what and how much difference there is betwixt them; and, other things being alike, the urines in diseases are always so much the worse as they degenerate more from the conditions of healthy urine. But healthy urine is limpid, thin, and of a yellowish or straw colour, in which subsides a light, uniform, and white sediment: in an ephemera and synochus not putrid, the urine does not much depart from these conditions, except that it is usually a little higher coloured, and sometimes affords a greater quantity of sediment. When therefore the urine is thus conditioned in a continual fever as it is described in the text, it is sufficiently evident that it varies in all the qualities from healthy urine, namely, both in colour and thickness, being turbid, crude, and without sediment; and therefore it is justly concluded from thence, that the blood and other humours, from whence the urine is separated, have undergone a great alteration from their healthy state, which is peculiar to the fevers called continual and putrid. At §. 734. we shall still have something more to say concerning the various conditions of the urine in a putrid synochus, so far as they relate to the

² H. Boerh. Chem. Tom. II. p. 304.

^a De Crisibus, lib. i. cap. 12. Charter. Tom. VIII. p. 394.

the deduction of a prognosis from thence.

From a hot sanguine constitution, age, and habit of body.] For in such people there is a predisposing cause, which by meeting with an occasional or accidental cause, such as heat of the air, violent motion of the body, drinking a great deal of wine, &c. may be capable of exciting a continual putrid fever; because in such people the blood is very much inclined to an inflammatory disposition; and the velocity of the circulation being increased, a very great increase of heat immediately follows, whence a sudden degeneration of the humours more especially into a putrid state is justly to be feared. Hence appears the reason why Hippocrates^b has pronounced the great health or strength of the *athletæ*, when extended to its greatest height, to be dangerous; and enumerating the diseases of different ages, he observes^c, that young people are subject to acute fevers, but afterwards to plurisies, peripneumonies, inflammation of the diaphragm, and ardent fevers. Galen^d will even have these predisposing causes so necessary towards the production of a synochus, that he believes it impossible for a continual fever to be excited in old age; or in a cold temperament of body, whether from the birth or from the body being at that time rendered cold; or in those of a weak or tender habit.

§. 732. **T**HIS putrid continual fever is distinguished into three kinds: Homotonous, keeping in the same degree of strength; Epacmastic or Anabatic, continually increasing; and, lastly, Paracmastic, continually decreasing.

This threefold division of continual fevers is given us by Galen^a. Those are called *homotonous*, which continue of equal strength from the beginning to the end; which he also calls *acmastic*. But he calls such *epacmastic*, or *anabatic*, when the fever gradually increases;

^b Aphor. 3. sect. i. Charter. Tom. IX. p. 7.
sect. iii. *ibid.* p. 125, 126.

Charter, Tom. X. p. 304.

Charter. Tom. VII. p. 128.

^c Aphor. 29, 30.

^d Method. Medend. lib. ix. cap. 3.

^a De Febr. different. lib. ii. cap. 2.

creases; and *paracmaſtic*, on the contrary, when it decreases. But it is to be observed, that every continual fever has a beginning, from whence it goes on gradually increasing, till it arrives at the acme or height of its increase; and therefore in this sense an homotonous fever may be said to increase: but, as Galen^f well remarks, this name is given to a continual fever, *ſi maneat ea febris magnitudo, quam in prima acceſſione ſummam habuit*; “ if the ſame degree “ or magnitude of it continues, as at firſt invaded the “ patient.” But if the fever continually increaſes, it is then to be termed *epacmaſtic*; and, on the contrary, when from its-greateſt height it gradually declines, he would have it called *paracmaſtic*. At the ſame time alſo it appears, that ſuch a fever which continues a day or two homotonous, or of equal ſtrength, may afterwards change for paracmaſtic in the decline of the diſeaſe: for I believe it ſeldom happens that ſuch a fever terminates all at once without a manifeſt declenſion, unleſs the fever is in a manner killed by large bleeding, as we obſerved before. And hence Galen^g, deſcribing the caſe of a young man ill of a putrid ſynochus, remarks, that the fever continued with the ſame ſtrength for the two firſt days, even though blood was drawn till he fainted; but on the third day he found the violence of the fever a little abated; and then he concluded that the fever ought to be termed a putrid *paracmaſtic* ſynochus, even though it continued *homotonous* or equal for the firſt days; and as the fever again declined on the fourth day, and at the ſame time the concoction in the urine was advanced in proportion, he concluded that the fever would terminate on the ſeventh day, as it happened. But, that the fever continues of the ſame ſtrength, increaſes, or decreases, we know from the quickneſs of the pulse, heat, and remaining ſymptoms being increaſed or diminifhed.

§. 733. **O**F theſe kinds the firſt is ſalutary, the ſecond is the worſt, and the third is better.

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^f Meth. Med. lib. 9. cap. 3. Charter. Tom. X. p. 203. ^g Ibidem, cap. 4. p. 206.

The reason of this is very evident. For if the remaining health in the patient can support the disease during its greatest increase, there are hopes that the disorder may be longer supported, as it increases no higher, but continues the same, or else gradually declines. But when the fever continually increases, then health declines as the disorder advances; and therefore there is just reason to fear, that nature being overpowered will sink under the disease. Therefore, from this distinction of a putrid synochus, one may be able to know what to judge concerning the event of the disease; but what else remains relating to the prognosis is delivered in the following aphorism.

§. 734. **T**HIS fever (§. 730.) is esteemed so much the more dangerous or fatal, as the pulse appears weaker, quicker, more unequal in strength, more irregular as to time, and more intermitting in its strokes; as the respiration is more difficult, frequent, and short, with a greater motion of the nostrils, and a greater uneasiness or anguish about the vital viscera, and as it is more irregularly performed as to time; as the lassitude or sense of weariness is more severe, as the weakness is greater, the tossings of the body more frequent, and as the patient oftener chuses to lie upon his back with his limbs stretched out; as the reason and passions of the mind appear more disturbed upon using them; as the appetite is more destroyed, and the digestion more difficult; as the urine appears thicker, redder, and more turbid, with a less sediment; or as it appears thinner, more watery, less in quantity, and more difficult to be retained; as the motions of the muscles are more trembling; as the patient refuses, or is afraid of being touched, plays with his fingers, and feels or catches after something about him; as the eyes are more sorrowful,

rowful, and moist with involuntary tears.

That every putrid synochus is dangerous, no one doubts; but yet there is not the same danger in all. But the various magnitudes or degrees of the disease being known, will point out the degree of danger; but this is discovered from the greater or less injury of the functions. For, as we observed before, in the comment to §. 3. from Galen, “the degree of magnitude in any disease must be computed by the degree of its departure from a natural state; and how far this happens, he only knows, who is thoroughly acquainted with the natural state of the parts.” Herein lay the wisdom of the ancient physicians, that they collected together the signs appearing in diseases; and by comparing them with what they observed in a perfect state of health, they by that means perceived how much health and disease were distant from each other; and from having observed this difference, they concluded with respect to the magnitude of the disease, and its salutary or fatal event. Thus Hippocrates, in his Prognostics, considered the face, with the habit of the body, and manner of the patient’s lying, with his behaviour, passions of the mind, &c. and by comparing them with what appeared altered in the disease, he condemned those which deviated from the usual laws of health, and commended such as appeared conformable to those laws. For the ancients did not derive their prognosis from understanding the causes of the disease, but only from a faithful observation of their known effects. Hence^h Hippocrates lays down this general rule, from whence the different magnitude and event of a disease may be presaged, *That we ought to consider the condition of what is evacuated by urine, stool, or sweat, or any other excretory of nature, whereby there is a passage out from the body: and if thus the body appears to deviate little from its natural or healthy state, the disease will be slight; but if the alteration is great, the disease will be in proportion;*

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portion;

^h Quantum in illis, que per vesicam, alvum, et per carnes excernuntur, vel sicubi alias a natura recedat corpus (considerandum est). Si parum, parvus morbus erit: si multum, magnus; si omnino multum, id hujusmodi lethale. *Aphor. 79. sect. vii. Charter. Tom. IX. p. 337.*

portion; but if nature is entirely perverted in the highest degree, the condition of the disease must be fatal. This rule has been followed by our great author, the celebrated Boerhaave, who has collected together and digested in order, from the writings of the ancients, every thing appearing amiss, either in the vital, animal, or natural functions; making the disease so much the worse and more fatal, as a greater number and more violent injuries had been suffered by those functions. We shall therefore consider more particularly each of these.

As the pulse appears weaker, &c.] Under the name of the *pulse* are comprehended those two distinct motions of the arteries, whereby they are dilated with the blood impelled by the force of the heart, and soon after they are contracted by their elasticity and the force of their muscular fibres so as to propel forward the contained blood. Therefore the pulse denotes the particular condition of the heart, with the nature, quantity, and motion of the blood, that universal humour of the body from whence all the other juices are derived; as also the different state of the artery, which is almost the primary vessel of all the parts of the bodyⁱ. It is therefore evident, that the observation of the pulse is of the greatest use in diseases. But in order to presage any thing certain from the pulse, it is to be observed, that the motion of the artery is liable to many alterations; which do not so much proceed from the disease, as from the patient's age, sex, temperature, and habit of body, with the passions of the mind, season of the year, and particular condition of the artery itself. Hence Galen^k has very well distinguished the alterations of the pulse into natural, non-natural, and preter-natural. The *natural* change of the pulse, he calls that which proceeds from the sex, age, temperature, habit of body, climate, season of the year, and the like: For thus, *e. g.* the pulse is usually stronger and slower in men than in women; in children it is much quicker than in adults, but
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ⁱ Boerhaave Institut. sect. 958.
 Charter. Tom. VIII. p. 4.

^k De Puls. ad Tyrones, cap. 9.

in old age it is slower; and in fat people it is much weaker than in those who are lean. By the *non-natural* changes of the pulse, he intends ^l those which follow after long exercise of body, warm bathing, a large meal, &c. But by the *preter-natural* changes of the pulse, he intends ^m those which arise from morbid causes. The pulse therefore will be best judged of, if it is first known what kind was natural to the patient before he was taken with the disease; whence Celsus well observes, (see the comment to §. 602, n^o 7.) that, of two physicians equally skilful, one who is a friend or acquaintance may be more useful than a stranger. But this cannot always be obtained, *cum multi medicos desiderent, cum quibus sani nullum habuerunt commercium*; “since many people have occasion for physicians with whom they never had any conversation in health.”ⁿ Therefore nothing more remains in such a case, than for a physician to attend to the general alterations of the pulse, agreeable to the age, sex, constitution, &c. It is also best to examine the pulse in each wrist, because it is frequently perceived much weaker in one hand than in the other, either from the deeper situation, or from the different size of the artery, &c. It will be likewise of use to observe the advice of Celsus, (which we mentioned before at §. 571.) namely, For a physician not to feel the pulse immediately as soon as he comes into the chamber; but first to sit himself down by the bed-side with a cheerful countenance, and to encourage the patient, if he is fearful, by fair words. For very often patients being solicitous about the danger of the disease, are disturbed at the first sight of a physician; and then a wonderful alteration is observable in the pulse from that cause, which yet commonly ceases soon after.

If therefore the alteration of the pulse proceeds entirely from the disease as the cause, then the following rules take place.

Weaker.] For it denotes that the powers moving the blood through the vessels are diminished; or else that there is a deficiency in the quantity of the fluid

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to

^l Ibid. cap. 10. p. 6.

^m Ibid. p. 7.

ⁿ Ibid. cap. 9. p. 4.

to be moved, whether from profuse evacuations preceding, or from almost all the blood being collected in many obstructed and dilated vessels, a very small quantity of it flowing freely as yet through the vessels, which is not yet sufficient much to dilate the arteries. But since the concoction of the febrile matter, with the attenuation and expulsion of it from the body by critical evacuations, or a deposition of it on certain parts of the body, require a strong circulatory motion; it is sufficiently evident, that a weakness of the pulse is always a bad presage. But, on the contrary, a strong pulse is always a good sign: or if it should be too violent in these fevers, it may be easily reduced to its due moderation by bleeding, and the other remedies before enumerated at §. 610; whereas, on the other hand, it is often extremely difficult to raise or restore the vital powers when they are too weak in diseases.

[Quicker, more unequal, &c.] For so much the more does it deviate from the healthy pulse, which is naturally used to be slow and equal. But the pulse appears thus in dying people, namely, very quick and weak, insomuch that their number cannot be distinguished; now and then a stronger pulsation or two coming betwixt, when the heart, having collected a somewhat larger quantity of blood in its venous sinuses and auricles, is more filled and more powerfully contracted; after which the pulse intermits again; or else there are very quick and small undulations, scarce perceivable, until the heart, being again filled, renders the pulse stronger for a moment. Since therefore this pulse denotes that life is wavering in its spring or fountain, it is sufficiently evident what a fatal presage it must afford in diseases. But it is to be observed, that when the matter of the disease, concocted and subdued by the fever itself, is moved through the vessels, and disposed for a critical evacuation, or to settle upon some part, there are often wonderful disturbances observed in the pulse, which yet are of no bad presage at that time; concerning which we spoke in the comment to §. 587, where we treated of a Crisis. But such alterations of the pulse may be known by the previous signs.

signs of concoction, with the stage of the disease, and signs of an approaching crisis, so as to distinguish them from those changes which arise from the malignity or violence of the disease. The same thing also holds true with respect to many other symptoms mentioned in the present aphorism; namely, when they sometimes precede or accompany a salutary crisis; and therefore it may be sufficient to remark this once for all.

As the respiration is more difficult, frequent, &c.] Hippocrates relied greatly upon a careful consideration of the patient's breathing, insomuch that he derives more of his prognostics from the respiration than from the pulse. Now if one is well acquainted how the respiration ought to be in a good state of health, it will be evident enough how much the diseased respiration varies from it. For the best respiration is performed when the air is drawn in, restrained, and discharged freely, slowly, and without any noise or interruption; and such a respiration denotes that all the organs serving to that action, are in a good state, and that the lungs may be easily expanded; also that the blood can be commodiously transmitted through them, and therefore that it is fit to circulate through all the vessels of the body °. Hence the reason is evident why Hippocrates says, *That the easiness of breathing ought to be regarded, as having a great influence towards health in all acute diseases, which are joined with a fever, and terminate in forty days* p. But when this easiness of breathing is wanting, it always affords a suspicious sign, insomuch as it denotes that the necessary dilatation of the lungs, and the free course of the blood through them from the right to the left ventricle of the heart, is impeded. In the mean time it must be observed, that the free dilatation of the thorax may be impeded from a malconformation in those who are crooked, or from a distension of the abdomen in such as are with child, and many other causes of the like nature existing

° H. Boerhaave Institut: §. 971.

p Spirandi vero facilitatem existimare oportet, quod valde magnam vim habeat ad salutem in omnibus morbis acutis, qui cum febre sunt, et quadraginta diebus judicantur. In Prognosticis. Charter. Tom. VIII. p. 608. Coac. Praeot. n° 261; ibid. p. 866.

ing before the disease; which will therefore have no share in the prognosis, any farther than as such disorders, being joined with such a misconformation, will more impede the respiration.

But a difficult respiration is said to be that which is performed with much more labour than what we usually observe in a healthy person awake and at rest; for then the breathing is so slow and quiet, that it is hardly perceived. For it is known from physiology, that the vital and healthy respiration is performed without the influence of the will, and that it even continues unknown to a person during sleep. But then to this vital respiration may be joined other causes, subject to the influence of the will, which serve to make a much more violent dilatation of the thorax in inspiration, and contraction of it in expiration. For there are a great number of very strong muscles, which, though serving for other purposes, do nevertheless operate in respiration by the influence of the will^a; and as these are much larger and stronger than those which perform the vital respiration, we are therefore able to increase, diminish, or entirely suppress our breathing at pleasure. When therefore a sense of anguish arises in fevers from the lungs being less easily dilatable, or from the blood having a more difficult passage through the pulmonary artery, the patient in that case endeavours, by the efforts of respiration, to remove those resistances, and therefore calls in the action or assistance of all the forementioned muscles: and then the respiration is said to be difficult; which always supposes that the lungs are less easily dilatable in their air-vessels, or else that there is an imperviousness of the blood to be transmitted through the pulmonary artery, or that there is a greater celerity of the motion of the blood through the pulmonary vessels, or that several or all of these causes concur together. For we know, that for all the blood contained in the right ventricle of the heart to pass freely and swiftly through the lungs into the left ventricle, requires the lungs to be dilatable in their air-vessels and cells: for want of which, nature

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has provided other passages in the fœtus, by which the blood may pass immediately from one ventricle of the heart to the other; but which passages are closed up after the birth, when respiration is allowed. When therefore the easy dilatation of the lungs is impeded by a convulsive constriction in asthmatic patients; or when the blood cannot pass freely through the narrow extremities of the pulmonary artery in inflammatory diseases of the lungs; or when, in animals otherwise healthy, the circulation being accelerated by violent motion of body, a greater quantity of blood must pass through the lungs in the same space of time: in all these cases, the respiration is performed with more labour; all the voluntary muscles then acting, which are not concerned in a healthy and easy respiration.

Hence the reason is evident why^r Hippocrates calls a difficult respiration by the title of *profound* or *deep*, as if a person was suffocating: for then there is observed a violent motion of the thorax, so as to raise up the bed-clothes with which the patient is covered, every time that he breathes; whence he calls it, as it were, a *manifest* respiration, because in healthy people at rest there is hardly any apparent motion of the thorax when they breathe. In another place^s he calls it a *high* respiration, when the superior ribs are elevated with a great force, and seem to raise the whole breast. But he every where condemns a difficult respiration in acute diseases: *A difficulty of breathing, and a delirium, are fatal signs in all fevers which are not intermitting*^t. The disease therefore will be always worse and more fatal, as the respiration is more frequent and laborious or difficult; the miserable patients panting, breathing quick, and labouring with the strongest efforts to dilate the lungs, like persons after violent running. Then appears the motion of the nostrils, that, by dilating them, a greater quantity of air may be drawn in to distend the lungs to a greater degree. This fatal sign

^r Prorrhēt. lib. i. textu 24. Charter. Tom. VIII. p. 715. Coac. Prænot. n^o 252. ibid. p. 866. ^s Epidem. 3. Charter. Tom. IX. p. 235, 236.

^t Quibuscunque in febribus non intermittētib^{us} spirandi difficultas fit, et delirium, lethale. *Aphor.* 50. sect. iv. Charter. Tom. IX. p. 167.

sign more especially attends, when, the strength being exhausted, the patient is no longer able either to sit upright in the bed, or to assist the almost suffocated respiration by a powerful action of the voluntary muscles. This motion appears very evidently in horses, who breathing quick after violent running, dilate the nostrils much wider than usual; and hence we read that dealers in cattle sometimes slit the nostrils of horses, that they may breath the air more freely ^u.

But since a pain about the vital viscera or parts adjacent impedes the respiration, it is a bad sign; and in an acute pleurisy, patients often suffocate themselves, when they are no longer able to dilate the thorax, to avoid the severity of the pain: and hence the blood returning from the head by the veins, not being able to discharge itself into the right ventricle already full from the free course of the blood through the lungs being impeded for want of respiration, the encephalon is compressed by the vessels distended with blood; hence the patient frequently lies stupid and half asleep in the worst kind of pleurisy, hardly any longer complaining of the pain, though in the mean time a very quick and difficult respiration denotes the greatest danger. Hence Hippocrates observes to us ^w, that a frequent respiration denotes pain or inflammation in the parts above the diaphragm: But Galen well remarks ^x, that the respiration may be injured if other parts also are in pain, which are obliged to move in inspiration; whence the same may happen from the liver, stomach, spleen, and other viscera, being inflamed or in pain. Hence Hippocrates gives us a more general rule in his Coan Prognostics, namely, *That the respiration which is quick and short, denotes a pain and inflammation in the principal parts or organs* ^y.

But even an *irregular* respiration affords a fatal preface. But thus is the respiration called when it is not continued in the same manner, but at one time it is

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^u Holler. Comment. in Coac. Hippocrat. p. 467.

^w In Prognosticis, textu 24. Charter. Tom. VIII. p. 607.

^x De Respirat. Diffic. lib. i. cap. 12. Charter. Tom. VII. p. 232.

^y Respiration, quæ frequens et parva est, inflammationem et dolorem in locis principalibus significat. N^o 261. Charter. Tom. VIII. p. 866.

more violent, and at another more obscure. Such was the slow and deep respiration for a time, which afterwards became short, in the phrenitic woman mentioned by Hippocrates ^a to have died in the twenty-first day of the disease, and in whom he tells us the respiration was large and slow even to the last. A like respiration he observed in another patient ^a, who expired phrenitic on the twenty-fourth day of the disease. Therefore he tells us, that such a respiration denotes a delirium or convulsion ^b. To an inordinate respiration also belongs that in which there is a deep or strong inspiration, and a small expiration; and, on the other hand ^c, if the inspiration is small, but followed with a violent expiration, or at least when it seems to be violent, from the great efforts used by the patients when they blow out the air with their cheeks distended; which patients Hippocrates ^d calls in another place *efflant*. Hither also belongs a *sobbing* respiration, in which the air is called in twice in a manner, one inspiration being doubled upon the other ^e. Such a kind of breathing we frequently observe in crying children, and sometimes in patients: thus in Philiscus ^f, who expired on the sixth day of the disease, the respiration continued large and slow even to the end, the breath being catched, or, as it were, called back, as Hippocrates tells us. He seems also to call the like anomalous respiration in another place by the name of a *clashing* respiration ^g; Celsus translating that passage in the following words ^h: *Quorum faucibus in febre illiditur spiritus, instat his nervorum distensio*; "That they who have a collision of the air in the throat or fauces in a fever, are soon after to have convulsions." But a sorrowful and *groaning* respiration, which is equally condemned in acute diseases by Hippocrates ⁱ, is also to be referred to this place.

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^a Lib. iii. Epidem. ægrot. 15. Charter. Tom. IX. p. 309. ^a Ibid. ægrot. 16. p. 310. ^b In Prognost. textu 14. Charter. Tom. VIII. p. 607. In Coacis Pægnot. n^o 261. ibid. p. 866. ^c Ibid. in Coacis. d Ibid. n^o 67. p. 836. ^e Ibid. n^o 261. p. 866. ^f Epidem. i. ægrot. 1. Charter. Tom. IX. p. 59. ^g Aphor. 68. lib. iv. Charter. Tom. IX. p. 178. ^h Lib. ii. cap. 7. p. 64. ⁱ Aphor. 54. sect. vi. Charter. Tom. IX. p. 286.

He also condemns a *cold* respiration as fatal; but a *hot* respiration, in which the expired air is in a manner smoky and burnt up, (see §. 739,) is likewise pronounced by him to be fatal, though less so than the cold respiration^k. The text indeed has it *feverish*; but as there is no sense to be applied to that word in this place, and as it is opposed to a cold respiration, therefore it seems that it ought to be read *fiery*. A cold respiration denotes that a gangrene has already invaded the lungs, and therefore is most certainly fatal. But a hot respiration denotes the most intense burning heat about the vital viscera, and consequently it presages great danger; yet it is not absolutely so certain a sign of immediate death as the cold respiration.

As the lassitude or sense of weariness is more severe, and as the weakness is greater.] Hippocrates^l tells us, that spontaneous lassitudes denote diseases; and if frequently observed when there is an inflammatory thickening of the blood, they dispose to acute diseases. When therefore there is a great lassitude, an imperviousness of the blood may be reasonably feared, more especially in the beginning of diseases; but in the end, the body being exhausted by disease, and especially after profuse evacuations, a weakness and lassitude may follow merely from a deficiency. See what has been said under the title of Weakness in Fevers.

The tossings of the body more frequent.] This is that restlessness in diseases, which obliges the patient to be continually changing his posture of body, in order to relieve the most troublesome anguish; and this is always a very bad sign; whereas an easiness in supporting the disease is always esteemed one of the best signs. See what has been said on this subject, under the title of Anguish in Fevers.

As the patient oftener chuses to lie upon his back, with his limbs stretched out.] It is a good sign in diseases, if the patient lies in the same posture which he is used to in health, as^m Hippocrates observes. But in what manner people in health lie, he describes in the

^k Coac. Prænot. n^o 261. Charter. Tom. VIII. p. 866. ^l Aphor. 4. sect. ii. Charter. Tom. IX. p. 46. ^m Hippocrat. in Prognost. textu 13. & seq. Charter Tom. VIII. p. 600.

the same place; as we observed before upon another occasion in the comment to §. 211, where we treated of procuring the natural union to parts wounded. For the best posture is for the patient to lie on either side, with his arms, legs, and neck, a little extended; for in this manner lie most people in health. But the more the posture in which the patient lies differs from that which is usual in health, it is so much a worse sign in the disease. When therefore the patient lies stretched out upon his back, the posture is the same with that which is usual to a dead body, into which it naturally falls by its own weight; and therefore it shews a weakness of the powers. For, as Galenⁿ well remarks, all the muscles are not idle when a person is sleeping, but some of them continue to act when a healthy person lies upon either side; for if a dead human body is placed in that posture, it immediately tumbles either upon its back or belly, according as it inclines by its own weight either one way or the other. Thus we see that people dying lie flat in a supine posture; and in the last article of death stretch out all their limbs, as if they were willing still to promote the distribution of the humours through the limbs, by giving all the vessels as straight a direction as possible; therefore, it is evident, such a posture of the patient's lying denotes that the disease inclines to death. The reason is therefore evident, why Hippocrates^o condemns such a posture of lying: and he says, that it is still worse if the patient lies with his body bent towards the feet; or with his arms, neck, and legs, unequally dispersed and naked, and continuing in sleep with the mouth open; or when, lying upon their back, they draw up their legs and remove them at a great distance from each other; or else lie prone upon their belly, unless they are accustomed to lie so in health; or, lastly, when in the height of the disease they desire to be continually sitting upright in the bed. For all these postures and habits are very different from that in which healthy people usually lie.

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ⁿ Lib. ii. de Motu Muscul. cap. 4. Charter. Tom. V. p. 386, 387.

^o In Prognosticis. Charter. Tom. VIII. p. 601, & seq.

As the reason and passions of the mind appear more disturbed at any thing they are used to.] Even the common people know it to be one of the worst signs, if the patient is destitute of his usual passions of mind, or is affected with others perfectly opposite. • For if the patient has no further regard for his wife, children, or friends, every one gives him up to fate as lost; and, on the contrary, they conceive great hopes of a recovery, if the patient is concerned about those whom he loved when he was well. Whence the reason is evident, why Hippocrates condemns a fierce answer from a person of a mild disposition; as also if the patient is for doing something which he is not accustomed to, or has unusual thoughts raised in his mind; and, on the contrary, is not affected at things which used to concern him; (as we said before upon another occasion in the comment to §. 702. in treating of a Delirium in Fevers.) For these circumstances denote, that the natural state of the common sensory begins to be changed by the disease, upon which the reasoning and passions of the mind depend.

As the appetite is more destroyed, and the digestion more difficult.] The first thing indicated in the general cure of fevers (as we observed at §. 598.) was to maintain or keep up the patient's life and strength; and it appeared from what was said at §. 599, that this indication required fluid aliments and drinks, easy of digestion, and averse to all putrefaction, &c. But even the best aliments of this kind will avail nothing, if there is not strength enough remaining in the patient to change the ingested nourishment into his own nature, so that it may be retained, subdued, and distributed throughout the body. When therefore the appetite is so far destroyed, that the patient has an aversion to nourishment of all kinds, or immediately rejects them by vomit as soon as taken, or else is greatly oppressed with anguish after them; in that case, little good can be expected; but the patient's strength being daily more exhausted by the disease, it will not be sufficient to carry him through the concoction to a crisis. Also from these symptoms we
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know, that the viscera, which serve for the taking in, retaining, and digesting the aliments, are greatly injured in their functions by the disease; and therefore the loss of appetite, and a difficult digestion, will be mischievous, both as a sign and as a cause.

As the urine is redder.] That redness of the urine is a sign of internal heat, was said before at §. 673. But it was proved (§. 675.) that the increase of heat in fevers was owing to a more violent attrition betwixt the parts of the fluids amongst each other, and against the sides of the vessels; and therefore the redder the urine appears, so much the greater must be the heat and attrition which preceded. All those disorders therefore may be from thence foreseen which were enumerated at §. 100, 689; and particularly a degeneration of the humours into a putrid acrimony, with a destruction of the most tender vessels. Hence the reason is evident, why Hippocrates^p ranks very red cloudy urines, without a sediment, among the signs of a future delirium.

As the urine is more thick, turbid, and with a less sediment.] For, as we said at §. 731, such urine greatly recedes from its healthy condition, and therefore denotes a great alteration made in the humours by the fever. But since the urine contains the water of the blood with its salts rendered more acrid and inclined to be alkaline, the oily parts of the blood being likewise rendered more acrid and nearly putrid, and its subtle earth greatly volatilized or attenuated by attrition^q; it is therefore evident, that then the urine must become thicker, when it is more highly saturated with these contents. But the more violent the fever, so much the greater is the attrition and degeneration of the saline and oily parts of the blood towards a greater acrimony; and therefore the quantity of those particles will be so much the larger, which ought to be expelled from the body by the urine. But if all these particles continue intimately mixed together in the urine of febrile patients, they make it

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^p In Prorrhetic. lib. i. Charter, Tom. VIII. p. 719.
haave Institut. §. 375.

^q Boer-

of a more or less intense red colour, chiefly according to the different proportion of the oily parts intermixed after they are become too acrid. But if the quantity of the contents of the urine is so great, or the proportion of its diluent vehicle so small, that the parts which lie dissolved in the urine cannot be equally sustained, it appears turbid and opaque sooner or latter, according to the different quantity and nature of the contents, with the greater or less degree of cold to which such urine is exposed. For we see, that by the winter's cold the urine of healthy people becomes thick and turbid, whereas only by increasing the heat it becomes very thin and limpid. The same likewise happens when the watery parts of the blood are dissipated by sweats in the summer-heats, whereby the urine is rendered thus red and acrid, and sometimes it very suddenly becomes turbid and opaque; but upon pouring on hot water it becomes pellucid, as it also does by discharging into it warm urine that is more dilute: hence the ignorant are often surprised, when they find the urine which they discharged pellucid in the evening before sleep, is in the morning rendered turbid, and soon after becomes again pellucid when they have mixed with it more recent and warm urine. But when those parts which can no longer remain dissolved separate from the urine, if they are specifically heavier than the liquor in which they float, they sooner or later fall to the bottom, according to the excess of their specific gravity; but when they are of the same weight with that of the containing liquor, or when the cohesion of the parts of that liquor is greater than can be broken through by the receding particles, they will then continue suspended in the same place without subsiding, and the urine will continue opaque and turbid. Or may it not perhaps be, that all these small particles have been so far divided by violent attrition, that by increasing their surface their specific weight is proportionably lessened? For thus we know for certain, that mercury, the most weighty of fluids, may be so far attenuated by fire as to fly in the air. Such urine therefore denotes a violent attrition of the parts
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of the fluids against the vessels ; an abrasion or wasting of the solid parts of the body ; and consequently that the smallest and most tender vessels suffer great violence ; that the humours of the body deviate greatly by disease from their healthy state ; and that the saline and oily parts, rendered more acrid, are therefore expelled in a greater quantity by the urine, and are almost destitute of the thinnest and most diluent part of the humours : whence there appears to be great danger from such an urine discharged in continued putrid fevers.

Hence the reason is evident, why Galen says, *That if the urine is turbid, appearing like that which is stale or voided by cattle, it denotes that the vessels are indeed filled with crude humours, and that nature is not unactive upon them, but powerfully concocts*^r. He afterwards commends a speedy separation of the gross from the liquid parts ; and observes, that when the sediment is light, white, and uniform, it indicates nature is about to separate the crude humours ; otherwise the reverse. He afterwards adds this general rule ; *But in all turbid urines, observe in general whether a separation is made speedily, or slowly, or not at all*^s. The first affords the best sign, the second is not so good, and the third is worst of all.

But these turbid urines are either discharged at first in that condition ; or become so, and continue turbid, after being first evacuated in a pellucid state, as we very frequently see in these fevers. Hippocrates calls these urines *subjugal*, because such are naturally observed to come from horses, cows, and other animals ; and he gives us a description of this urine in the following manner, in the wife of Philinus, who lay ill of a fever on the fourteenth day after lying-in : *On the eleventh day of the disease she discharged a great quantity of urine, which was thick and white, almost like what*

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^r Si turbida (urina) sit, qualis veterinorum apparet, crudis vocatis humoribus refertas quidem venas esse indicabit, non vero quiescere circa illos naturam, sed valide concoquere. *De Sanitate tuenda, lib. iv. cap. 4. Charter. Tom. IV. p. 121.*

^s Verum omnium turbidarum urinarum generalis nota tibi sit separatio, vel cito, vel tarde facta, aut omnino nulla. *Ibid.*

is observable in subsiding urines when they throw down a sediment; yet, after standing a long time, nothing subsided. Its colour and consistence was like the urine of cattle; and this sort of urine which she made I have also observed in others^t. But he universally condemns such urines; for they do not appear but in fevers attended with dangerous symptoms. In another place^u he observes, that such urines denote pains of the head, either present, or about to happen. And in his Prognostics^w, after saying that a thin yellow urine is a sign of crudity, he adds, that thick urines are more fatal. But more especially the worst consequences are to be expected, if the urines continue many days without a sediment; for if they begin to subside, we may hope for better consequences. Thus, in Pericles^x, on the first day there was a large quantity of turbid white urine discharged, which did not deposit a sediment; on the second day it was indeed thick, but subsided more; but on the third day it was concocted, containing much sediment; and on the fourth day a copious warm sweat perfectly terminated the disease, and put the patient out of danger.

Such thick urines therefore denote great crudity of the disease in fevers, and a great force exerted by nature upon the morbid matter: and therefore they demonstrate certain danger in most acute diseases, unless they are soon changed for the better; in a slighter disease, they denote a long continuance, and a difficult crisis.

Or appears thinner and more watery.] For such an urine denotes those parts of the humours to be retained in the body, which ought naturally to be evacuated by these passages; namely, the oils and salts of the blood rendered more acrid, and still disposed to be more offensive, because in an acute continual putrid fever they

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^t Undecimo die morbi minxit urinam confertim copiosam, crassam, albam, quale quid ex urinis subsidentibus fit, quando returbantur; multo tempore relicta non subsidebat. Color et crassities similis erat subjugali. Talia me jebat, qualia ego vidi. *Epidemicor. i. ægrot. 4. Charter. Tom. IX. p. 104.*

^u Aphor. 70. sect. iv. *ibid. p. 180. & Epid. vii. p. 597.*

^w Charter. *Tom. VIII. p. 635.*

^x *Epidem. 3. ægrot. 6.*

Tom. IX. p. 304.

all incline sooner to corruption than in health. This kind of urine is also sometimes observed, when the blood, rendered impervious by an inflammatory thickness, refuses to mix with watery liquors however copiously taken into the body; in which case the drink taken immediately escapes by the urinary passages. Hence the reason is evident why Hippocrates affirms, *That the urine is also bad which is very soon made after drink, more especially in pleuritic and peripneumonic patient* *. So also in another place he condemns thin yellow urine, when he says, *That thin and yellow urine denotes crudity in the disease; but if the disease is chronical, or of long standing, the appearance of such urine denotes danger, lest the patient should not be capable of supporting the disease, and of making a concoction in the urine* †. See also what has been said of such urine in the commentaries to §. 712.

Less in quantity, and more difficult to be retained.] For the same reason, the urine which is small in quantity is also condemned; because it denotes that the blood, deprived of its diluent vehicle, cannot supply a sufficient quantity of lymph to wash out the more acrid parts. And therefore generally such urine which is made in small quantities is commonly very sharp, and apt to excite a strangury, or a continual and troublesome inclination to make water. It is also a very bad sign in these diseases, if the urine runs away from the patient unknown to him, or is discharged without the influence of the will; for then there is always a considerable injury of the brain from the disease: and hence this symptom seldom appears but in delirious, phrenitic, and comatous patients. This is observed by Hippocrates ‡, when he says, *Quæ urinæ non recordantibus effluunt, perniciose*; “the urine which runs away unknown to the patient, is pernicious.” And afterwards he subjoins, *Nam ab his mejuntur, ac si sedimentum conturbaveris*: “For by these the urine is
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* Mala est quoque (urina) quæ post potum cito mingitur, maxime in pleuriticis et peripneumonicis. *Coac. Prænot.* n° 579. *Charter. Tom. VIII. p. 886.*

† In Prognosticis. *Charter. Tom. VIII. p. 634, 635.*

‡ Proæphet. lib. i. textu 28. *Charter. Tom. VIII. p. 718.*

“ discharged as if it was shook together with a sediment;” namely, turbid and like the urine of cattle. And again ^a, *Quos latet urina procidens, et pudendum contrahitur, desperati*: “ Those patients are without hopes who have a contraction of the pudenda, and who are not sensible of the discharge of their urine.” But that text admits of another reading, which seems to be better, and is given us by Foësius and Duretus ^b. For in place of *οἱσι λανθάνει το υρον προσπιπλον και το αιδοιον εκκονηαι, ανελπισοι*, they read, *οἱσι λανθάνει το υρον προσπιπλον ες το αιδοιον, εκλυονηαι ανελπισοι*: *Quos latet urina procidens ad pudendum, exsolvuntur desperati*; “ those who are insensible of a discharge of the urine from the pudenda, are given up as incurable.”

As the motions of the muscles are more trembling, the patient refusing to be touched, playing or catching with his fingers, &c.] For all these denote that the common sensory is injured; whence a delirium, convulsions, &c. are to be feared. See more upon this subject under the title of Trembling in Fevers; likewise in the comment to §. 702, where we treated of these as the signs of a future delirium. But Hippocrates ^c is almost the only one who has remarked this symptom, in which the patient refuses to be touched; he calls it a flying from the physician's hand, and remarks that it is a bad presage. For when a physician applies his fingers to such a patient in order to examine the pulse, he suddenly snatches away his hand; but if they are asked for what reason they draw away their hand, they answer they know not. In that case there seems to be so great an irritation in the common sensory, that the whole is disturbed, even from the slightest alteration of the nerves, and in distant parts of the body; and therefore convulsions are to be feared from thence in a little time. For the same reason, when these patients refuse to see light, Hippocrates ^d remarks it to be a sign equally pernicious in diseases.

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^a Coac. Prænot. n^o 474. Charter. Tom. VIII. p. 879.

^b In Coacis Hippocrat. p. 363.

^c In Coacis Prænot. n^o 61.

Charter. Tom. VIII. p. 855.

^d In Prognostic. Sentent. 10. Charter.

Tom. VIII. p. 597.

As the eyes are more sorrowful.] An attendance ought to be given to all these particulars; and therefore Celsus very well directs, That the physician should sit neither in darkness nor far from the patient's head; but opposite to him, in a light place, that he may perceive all the signs that can be taken from the countenance of the patient^e. But the eyes usually afford a great many of the most certain signs in diseases; and no wonder, since even in healthy people they point out the various affections of the mind, and often the first attack of diseases appear earliest in the eyes. When the fit of a quartan first invades, there is a paleness of the eyes; when a person suddenly faints away, the usual brightness of the eyes is first diminished. Hippocrates knew how to presage a future delirium from the eyes; see the comment to §. 702. In weak people, after preceding diseases, the eyes generally afford the first signs of their gaining strength. It was therefore not without reason that^f Hippocrates pronounced, *Oculi ut valent, ita totum corpus*; “that according to the condition of the eyes, so is that of the whole body.” It is therefore one of the worst signs in diseases, when the natural brightness of the eye is depraved; which depends upon an equable repletion of the vessels, and being continually moistened with a very thin lymph, by which the eye is kept clean. Hence, in dying people, the eyes appear dry, wrinkled, and dusty; for the eyes would soon be rendered foul by the dust that floats in the air, if they were not frequently to be washed by the continual motion of the eye-lids, and a very thin lymph which distils over them. Hence towards death, for want of this moisture, and from the patient's lying insensible and stupid, these sordes are not washed off but accumulated, and afford the most sorrowful image of approaching death; and the common people distinguish this sign, by saying, that the eye-strings are broke, or that the sight is gone, and therefore that it is over with the patient.

Hence

^e Lib. iii. cap. 6. p. 130.

^f Epidemic. 6. Charter. Tom. IX.

Hence Hippocrates makes it a bad and pernicious sign, for the eyes to be perverted; or for one to be less than the other; or for the white of them to be red, livid, or interspersed with black veins; or for foul matter to appear about them; or for them to be turned upwards too much, or be too prominent, or become very hollow; or for the eye-lids to turn back, or appear rigid and full of spots; or for the cornea to appear tough, or dry, without brightness,^g &c. The like observations he also gives us in his Coan Prognostics^h; where he adds, *si circa oculos tenuem concretionem albam*; “if the patient “has a thin white concretion about the eyes:” which kind of pellicle, arising from the humours collected and inspissated, often appears obscuring the sight in dying people. Hence again he says in another place, *That the eye being dull and depraved in its sight, fixed, and dim or obscure, is a bad signⁱ*. But on the other hand, he esteems a brightness of the eyes one of the best signs in diseases; and hence he says, *That a clearness of the eyes, and the white of them being free from livid or black spots or vessels, is a critical sign. If therefore the eyes soon clear up, it denotes a speedy crisis; but if they clear up slowly, a slow crisis^k*.

Sometimes also it happens, that the patient’s countenance is sorrowful, with or without tears, though the eyes do not as yet appear dry or dusty; and if you ask what is the cause of his grief, he denies that he has any. This is always one of the worst signs, which I have several times observed in patients. But among the bad signs Hippocrates mentions a gaping of the eye-lids in the patient’s sleep, so as to expose some of the white of the eye, when this does not arise from a diarrhœa or purging draught, nor the patient accustomed to sleep in that manner^l. For he observes that
this

^g In Prognost. sentent. 10. Charter. Tom. VII. p. 597.

^h No 219. *ibid.* p. 864. ⁱ *Oculus hebesceus pravum, et fixum et caliginosus malum. In Prorrheticis, lib. i. Charter. Tom. VIII. p. 73.*

^k *Oculorum puritas, et alba illorum ex nigris vel lividis pura fieri, criticum. Si igitur cito depurentur (oculi), celerum crisin significat; si tardius, tardiozem. In Coacis, no 218. *ibid.* p. 864.*

^l In Prognost. sentent. 11. Charter. Tom. VIII. p. 599. et Aphor. sect. vi. Charter. Tom. IX. p. 285.

this is a very fatal sign. As also if, in a fever not intermitting, the lip, eye-lid, eye-brow, eye, or nose, appear distorted or perverted; or if the patient cannot see nor hear, being extremely weak: for that if either of these happen, death is at hand ^m.

[Moist with involuntary tears.] These are the tears which so frequently appear in dying people; whence the poet tells us, that the eyes swim in the midst of death. Hippocrates ⁿ condemns a watering of the eyes with tears without a cause; for if the patients cry from hearing of the danger of death, or from seeing those who are dear to them, it is rather a good sign, as they are then moved by the usual passions of the mind. Hence in another place he pronounces voluntary tears to be a good sign in patients lying ill of acute diseases, but involuntary tears a bad sign ^o. He observes also that this takes place not only in fevers, but likewise in other diseases ^p. But he excepts only one case, in which involuntary tears denote a future crisis by a bleeding at the nose; namely, if those tears are not accompanied with any bad signs. For in another place he says, *In those who have an involuntary flux of the tears in acute, and especially in ardent fevers, in them we are to expect a flux of blood from the nose, provided they have no other pernicious symptoms; for if there are other bad signs, they portend not an hæmorrhage, but death* ^q. But Galen observes, that physicians ought not to be frightened, though such a patient should be delirious, and seem to have a subsultus of the tendons; provided, together with the involuntary tears, there are other signs of a future hæmorrhage at the nose; such as a pain in the head, which did not attend before, with a tension and pain of the neck, a palpitation or throbbing in the face, redness of the eyes, &c.: for in that case, he says, these are all signs of the humours

^m Aphor. 49. sect. iv. Charter. Tom. IX. p. 166. In Prognost. sentent. 12. Charter. Tom. VIII. p. 600. ⁿ Ibid. sentent. 10. p. 597.

^o Epidem. 6. textu 21. Charter. Tom. IX. p. 380. ^p Aphor. 52. sect. iv. Charter. Tom. IX. p. 168.

^q Quibus in febribus acutis, maxime in ardentibus, invitz effluunt lacrymæ, illis sanguinis e naribus profluvium expectandum est, si et reliqua perniciosa non habuerint: male enim habentibus non hæmorrhagiam, sed mortem portendunt. Epidem. 1. Charter. Tom. IX. p. 75.

mours tending upwards. He even believes these involuntary waterings of the eyes with tears to be such an infallible sign, that he asserts in the like case, *Quod si inviti illacrymentur, aut splendorēs se cernere sibi videntur, aut manus admoveant naribus velut scalpentes, tunc jam non adfore, sed adesse sanguinis fluxionem conspiciēs*; “that if the patients have involuntary tears, “or think that they see shining lights, or apply their “hands to their nose as if they would scratch it, you “will then see that a flux of blood is not only to “pervene, but is even that instant at hand^r.”

These are the principal signs from whence we conclude that an acute, continual, and putrid fever is very dangerous, and inclines to death. But the greater number there are of these bad signs attending at one time, it is evident that so much the worse and more fatal must be the disease. At the same time it is also apparent, that the prognosis of these diseases does not so much depend upon understanding the causes, as from the certain signs of the functions injured, which denote the conditions of the disease, whereby they recede more or less from their healthy state.

§. 735. **I**F the patient is watchful, or disturbed in his sleep; if the body is discoloured with purple or livid eruptions; and if the hypochondria are tense and inflated; the patient is near death.

[If the patient is watchful, or disturbed in his sleep.] What mischiefs ensue from watchings in fevers, was said before at §. 708; and from thence it is evident how much good may be expected in diseases from a soft and quiet sleep. For the principal hopes are, that the patient, being refreshed by a kind sleep, will be more easily able to support the troublesome effects of the disease, so as to hold out till it terminates or comes to a crisis. But when the sleep is difficult and disturbed, the patients being often awaked in a fright; find

^r Lib. ii. Method. Med. ad Glaucon. cap. ult. Charter. Tom. IX. p. 366.

or if they lie in a profound sleep, but upon waking find no refreshment from thence, but rather an increased weariness of the body and greater weakness; there are then but small hopes, the disease being commonly attended with the worst symptoms, and the event usually fatal. Hence Hippocrates^s condemns turbulent and fierce wakings in the sleep like convulsions; and in another place^t he pronounces frights or convulsions in the sleep to be bad in fevers. He even lays down the following as an universal rule in practice: *When, in a disease, sleep occasions labour or pain, it is a fatal sign; but if the sleep relieves, it is not fatal*^u.

If the body is discoloured with purple or livid eruptions.] What an ill sign such eruptions are in diseases, was demonstrated at large at §. 723, where we treated of febrile eruptions: for they are in a manner mortifications, and denote a gangrenous disposition of the disease. But it must be observed, that these pustules ought well to be distinguished from those purple and livid spots, which sometimes appear even from slight fevers in scorbutic people. But those scorbutic spots are of a more irregular figure, and generally broader; and may be known from the signs of a scorbutic cacochymy preceding, and from an absence of the bad symptoms.

If the hypochondria are tense and inflated.] What the ancient physicians properly understood by the name of the *præcordia* or the *hypochondria*, was said before in the comment to §. 701; where it appeared, that the upper orifice of the stomach, with the *hypochondria*, strictly so called, and the epigastrium, are included in that term, together with the liver, spleen, stomach, pancreas, &c. which they contain. Hippocrates seems always careful to observe in diseases, the disposition of the hypochondria; and from thence he derived many presages, as well with respect to the patient's recovery as death. But he lays down the following universal rule in practice: 'That the *hypochon-*

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^s Prorrhetic. lib. i. Charter. Tom. VIII. p. 779. ^t Aphor. 67. sect. iv. Charter. Tom. IX. p. 177.

^u Quo in morbo somnus laborem facit, lethale; si vero juvet somnus, non lethale. Aphor. 1. sect. ii. *ibid.* p. 43.

drum is best which is free from pain, soft, and equable, alike both in the left and right side. But if it appears inflamed, painful, or tense, or if the right differs from the left, or the left from the right, in all these cases proper regard is to be given the disease^w. But in his Coan Prognostics he adds, 'That if the hypochondrium is inflamed, unequally swelled, or painful, it is a sign the disease is of an ill condition^x. But he more especially condemns it if those parts are distended with an inflammatory tumour; and justly, since it denotes the viscera there seated to be very much injured, and either that sudden death or a very dangerous suppuration is to be feared in those parts: and therefore he says, But a hard and painful tumour in the hypochondrium is indeed a very bad sign, if it occupies the whole; but if it is only in one part of the left hypochondrium, it is less dangerous. But such tumours in the beginning of the disease, signify that there is danger of speedy death; but if the disease is past the twentieth day, and the tumour does not in the mean time subside, it turns to a suppuration^y. Yet he observes, that sometimes bleeding at the nose happens, and is very useful in the first stage of such diseases; and therefore he orders the physician to be attentive whether the patient has a pain in his head, or perceives a dimness in his sight; which are signs denoting a flux of blood about to follow from the nose. For a tension of the hypochondrium both on the right and on the left side, he ranks among the signs of a future hæmorrhage from the nose^z: but then he particularly

observes,

^w Optimum quidem hypochondrium est, si doloris expers, et molle ac æquabile, et in dextris et in sinistris. Inflammatum autem, vel dolorem adferens, aut tensum, aut dextrum a sinistro varium, aut contra sinistrum a dextro, hæc omnia attendere oportet. *Hippocrat. in Prognost. Charter. Tom. VIII. p. 610.*

^x Signum morbi mali moris est, si hypochondrium inflammatum, inæqualiter se habens, aut dolens fuerit. No 280. *ibid. p. 867.*

^y Tumor autem durus et dolens in hypochondrio pessimus quidem, si totum hypochondrium occupaverit: sin vero in altera tantum parte fuerit, minus periculosus, qui in sinistra. Verum significant tales tumores in initio quidem, periculum esse mortis brevi futuræ; si vero febris vigesimum diem superet, nec tumor interea subsidat, in suppurationem vertitur. *In Prognostic. Charter. Tom. VIII. p. 612, 613. Coac. Prenot. no 281. ibid. p. 867.*

^z *Epidem. I. Charter. Tom. IX. p. 60. & in Prognosticis, Charter. Tom. VIII. p. 682.*

observes, that such a tension is without pain or inflammation. It is therefore evident, that a tension of the hypochondria is always bad if a pain attends at the same time; although sometimes, especially in young people, a salutary hæmorrhage from the nose in the beginning of the disease may prevent all further mischief.

But Hippocrates^a acknowledges those tumours of the hypochondria to be less dangerous, which are soft and without pain, and which yield to the pressure of the finger, for they seem to be flatulent: and if those tumours occupy the hypochondria, strictly so called, they seem chiefly to be lodged in the stomach or intestinum colon. Hence he says in another place, *But tumours arising in the right hypochondrium, which are in a great part soft, and more especially if upon being pressed they yield a sort of murmuring noise, are not to be esteemed very malignant*^b. From whence it would seem, as if the hypochondria being tense and inflated, ought not to be always esteemed a very bad sign. But here we consider the concurrence of many fatal signs together, to which, if such an inflation and tension of the hypochondria is joined, one may justly conclude that death is at hand. For in this case the distension arises from a putrefaction of humours generating elastic matter, as also from a palsy of the stomach and intestines, whence they no longer resist dilating causes, but are wonderfully expanded; to which is sometimes joined an inflammatory distension of the liver and spleen. Hence also in dying people the whole abdomen is often distended with an uniform tumour, which Hippocrates remarks in his last aphorisms^c, which yet are esteemed by many to be not genuine. For, after having enumerated many other fatal signs in diseases, he subjoins, *These signs become still more manifest, in people who are about to die, when the abdomen is swelled and inflated*^d. But Charterius, in his commentaries to this aphorism,

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relates

^a Ibid. p. 614.

^b At in dextris sublati tumores, qui magna quidem ex parte molles sunt, maximeque prementi si quid submurmuravit, non admodum maligni existimandi sunt. *Epidem. 4. Charter. Tom. IX. p. 328.*

^c Sect. viii. Aphor. 19. Charter. Tom. IX. p. 351.

^d Interituris signa hæc manifestiora fiunt, et ventres attolluntur et flantur. *Ib. d.*

relates the case of a lad who had a quartan fever changed into one acute and continual: this unhappy patient had an inflation of the abdomen before death, and afterwards the flatus was discharged with a considerable noise upon opening the abdomen; and this doubtless from an elastic matter generated by putrefaction, and filling up the cavity of the abdomen. The reason is therefore evident why a tension and inflation of the hypochondria is to be esteemed a fatal sign in acute continual fevers.

§. 736. **T**HE general method of cure before delivered (§. 598.) requires nothing more than to be varied according to the variety of the things indicating, the violence of the symptoms, condition of the patient, and state of the disease.

The general cure of fevers described at §. 598, and explained more at large afterwards in the following aphorisms, does likewise take place in the cure of this fever; and therefore what has been said there may suffice. But that this general treatment of fevers may be adapted agreeable to particular cases, it ought to be known at the same time what functions are injured, and what sort of degeneration takes place in the solid and fluid parts; for from thence arise the various indications. In a putrid synochus (see what has been said at §. 730.) we know that many of the humours degenerate from their healthy state, sometimes tending to an inflammatory thickens, and sometimes also inclining to too great a dissolution; and therefore the disease, though comprised under the same denomination, often requires a very different method of cure. For there are two kinds of such fevers observed; both of them continual; both of them corrupting the humours, and injuring almost all the functions of the body. One of them, being joined with a violent inflammation, is seated in the larger vessels and grosser humours, attended with great heat, a hard pulse, and

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(in the beginning of the disease at least) sufficiently strong: and the cure of this kind requires bleeding, cooling clysters, diluent and attenuating medicines, &c. But there is another kind of these fevers observed, in which there is not found so great an alteration in the grosser fluids of the body, but the disorder seems to be seated chiefly in the very thinnest humours: nor are such fevers therefore attended with a great heat, nor are there any signs of an inflammatory thickness, but frequently the grosser juices are dissolved into a diseased thinness. Observation has taught us, that, in this last case, such remedies are useful as are able, by an aromatic penetrating virtue, to raise the languishing powers, and expel from the body; by sweats, or increased diaphoresis, that latent malignity which is often received by an epidemic contagion; as is observed in the plague and pestilential fevers. Hence it has been customary to call these remedies *alexipharmic* or *expulsive*: of which more especially rue, scordium, angelica, &c. have been recommended in all ages; in which there is a penetrating spiciness, while at the same time there is no such great danger of too much increasing the febrile motion, more especially if they are drank infused in water. In this kind of fever, bleeding, clysters, and the like kind of weakening medicines, are prejudicial. But when such alexipharmic medicines are used in those fevers which are accompanied with an inflammatory thickness of the blood, they make every thing worse; the ill effects of which bad practice, Sydenham so frequently lamented in his time. For a malignant fever spreads only at times, and inflammatory fevers are much more numerous; whether the inflammatory thickness of the blood pre-existed before the fever, or whether it was introduced during the violence of the fever itself by a dissipation of the thinnest humours and inspissation of the rest. For at that time physicians threw their patients into the greatest danger in all acute diseases, under apprehensions of malignity; whence they had recourse to the use of the hottest cordials and alexipharmics. Hence Syden-

ham^d, who was bold enough upon a generous principle to oppose himself to the torrent of this practice, did not hesitate to say, that the notion or term of malignity in fevers, had been more destructive to mankind than the invention of gun-powder, because physicians more especially called those fevers malignant in which there was a more intense degree of inflammation than in others. But a physician who attends to all the appearances of a disease, will easily distinguish those fevers which partake of inflammation, from such other continual putrid ones as from their irregular symptoms, sudden weakness, and less intense heat, are generally called malignant. But since the main of the cure lies principally in ruling or keeping the force of the fever under a due moderation, that it may not be raised too high, nor be rendered too languid; it will therefore be proper to consult what has been said upon this subject, with regard to the cure of fevers in general, in the commentaries to §. 609, 610, 611. And since also the violence of the symptoms, more especially the intensity of the heat, as we there observed, point out the too great force of the fever; it is therefore evident, that a principal regard ought to be had to those symptoms.

But that a difference in the cure will be necessary, according to the different condition, age, sex, and habit of the patient, &c. no one doubts: but of these we also treated at large in the comment to §. 602, and the other aphorisms relating to the cure of fevers in general; where we also spoke of such things as related to the different stage of the disease, being either in its increase, its height, or its declension. From these places, therefore, the method of curing continual putrid fevers is to be taken.

§. 737. **T**HES E fevers have been called Synochi by the ancients, and Continent by the moderns, because they have no remission of their heat; but they call those which are

^d In *Schedula monitoria de novæ febris ingressu*, p. 681.

are continual and remitting (§. 727) by the name of *Syneches* or *Continued*.

We said before in the comment to §. 727, that a *continual* fever, properly so called, is that which continues in one strain from the beginning to the end. These have been usually called *continent* or *synochi* by the school-physicians, concerning which we have just now treated. But where there is observed remarkable remissions and exacerbations of the fever, without ever entirely leaving the patient, it is then called *syneches*, or a *continual remittent*. But among the ancient physicians συνεχες πυρετοι was used in a more general signification; insomuch, that they seemed sometimes to comprehend by that name those fevers which are at present called *synochi*, as is evident from what Galen says: *The ancients seem to have used the name of continual and intermittent in a twofold sense. For they sometimes call continual fevers, all those which do not entirely intermit or leave the patient. But sometimes they do not intend all such fevers as do not intermit, but such principally as undergo no variation till they terminate. Sometimes also they call intermittents those only which entirely cease; but sometimes they use it for those fevers which do not entirely cease, but undergo considerable changes in their beginning, increase, height, and remission*^c. He then adds, that some of the younger physicians call those fevers which undergo no considerable change, not by the name of *syneches*, continual, but of *synochus*, continent, or continued; but those only which did not entirely intermit, but remitted and again increased, they called *syneches*. But the ancient physicians have sometimes called these continual remitting fevers by the name of *continual*, and sometimes by that of *intermittents*. For when

^c Continuæ et intermittētis nomine bifariam veteres uti videntur. Continuas namque febres appellant interdum quidem omnes quæ ad integritatem non desinunt. Interdum vero non omnes, quæ ad integritatem febris non desinunt, sed illas solas præcipue, quæ ad iudicium utique nullam permutationem fortiantur. Ita vero et intermittētes interdum quidem illas solas nominant, quæ ad integritatem desinunt: interdum vero quæ ad integritatem non desinunt, sed insignes faciunt particulium accessionum mutationes in principium, incrementum, vigorem, et remissionem. *Commentar. 3. in lib. i. Epidem. Charter. Tom. IX. p. 86.*

when they compared them with *continual fevers*, as they are now called, they were termed *intermittent* and, on the contrary, if they compared them with those fevers which entirely cease or intermit, they were called *continual*: for they are a sort of intermediate fevers betwixt continual and intermittents.

This seemed necessary to be observed, to prevent confusion or mistake to those, who, in learning physic, might search into the works of the ancient physicians.

Of ARDENT FEVERS.

§. 738. **A**MONG these continual fevers, the *Causos*, or *Ardent Fever*, as it is called, deserves to be particularly considered, because of its frequency, danger, and difficulty of cure.

This fever is called *ardent* from the great heat which afflicts patients that lie ill of it; whence it is also denominated (*καυσος ἀπο τῆ καύσεως*) *Causos*, from *burning*. But the *Ardent Fever*, properly so called, is reduced to the class of continual remittents, because it manifests exacerbations or fits of increase, and does not run in a continual even course, without alteration, till it comes to a crisis, as we observe in the synochi or continual fevers. For all authors who have written upon ardent fevers acknowledge this. Thus Celsus, treating of the cure of an ardent fever, observes, *That the patient ought to be cooled with oil and water in the accessions or increase of the fever, &c.* If phlegm gathers together in the stomach, when the accession or increase of the fever is going off, the patient is to be vomited^f. And Galen says, *That a true ardent fever strictly keeps to all the signs of a tertian, from which it differs only by not invading with a rigor or shivering, and not leaving the patient entirely^g.*

Like-

^f In ipsis accessionibus oleo et aqua ægrum refrigerandus est, &c. Si pituita in stomacho coit, inclinata jam accessione, vomere cogendus est. *Lib. iii. cap. 7. p. 134.*

^g Exquisita febris ardens, quum omnia alia servet accurate tertianæ indicia, eo solo differt, quod neque cum rigore invadat, neque ad integritatem deveniat. *De Crisib. Lib. ii. cap. 6. Charter. Tom. VIII. p. 415.*

Likewise Hippocrates, in treating of an ardent fever, in several places mentions exacerbations or fits of increase, which happen on days either equal or unequal, as we shall declare hereafter. For although other fevers may be called *ardent*, from the great intensity of their heat^h; and sometimes continual fevers are thus called, more especially by the modern writers, because in these there is often felt a pricking or smart heat by the touch of the finger (see §. 731); and even Hippocrates calls the fever in its greatest violence by the name of *fire*, (see the comment to §. 558); yet it has been customary in our days, to give the name of an *ardent fever* to continual remittents attended with a burning heat and the other symptoms to be enumerated in the aphorism next following.

When therefore intermitting fevers, especially quotidian and tertians, are prolonged, or their fits redoubled, so as to leave the patient at no time free from the fever, they may be changed into an ardent and most dangerous fever. Hence Hippocrates says, *The fevers which are not intermittent become more violent and more dangerous every third day; whenever they do but intermit, it is a sign they are without danger*ⁱ. Of this kind seems to have been that fever which Celsus^k tells us is by most physicians called the *semi-tertian*; namely, that other kind of tertian, *longe perniciosius, quod tertio quidem die revertitur, ex octo autem et quadraginta horis fere sex et triginta per accessionem occupat (interdum etiam vel minus vel plus); neque ex toto in remissione desistit, sed tantum levius est*: “much more dangerous than the other, which returns on the third day; but then the fit holds almost thirty-six hours out of the forty-eight, and sometimes either more or less; it does not entirely go off in the remission, but is only milder.” But it is evident, this *semi-tertian* of Celsus is only a common tertian prolonged

^h Galen, *ibidem*.

ⁱ Quæ febres non intermittentes tertio quoque die vehementiores fiunt, periculosiores; quocunque autem modo intermiserint, citra periculum esse significat. *Aphor. 53. sect. iv. Charier. Tom. IX. p. 162. et in Capac. Prenot. n° 118. Charier. Tom. VIII. p. 858.*

^k Lib. iii. cap. 3. p. 116.

longed so as to have little or no intermission; but, as we shall presently declare, the semi-tertian of Galen is different from this fever. If now the tertian should be double, so as to have a new fit on the second day, like that which will follow on the fourth, the fits being protracted, will easily turn a double tertian into a continual remittent; and Celsus seems to have described a tertian under the name of a quotidian, and even to have almost confounded a quotidian with a continual fever; for thus he expresses himself: *But quotidiāns are various: for some of them go off, so as to leave the patient perfectly well; others, in such a manner that the fever is indeed in some degree less, but yet some relics of it continue till another fit comes on; and others, again, often remit little or nothing, but continue as they begun: some, again, have a great heat, which is tolerable or moderate in others; some again are every day alike; and others vary more or less, becoming one day more gentle, and another more violent,*¹ &c.

But those continual remitting fevers, which arise from the fits of a tertian lengthened out or repeated, and which are worse every third day, Galen^m, rather chuses to call *tertianary* than *semi-tertianary*, because they approach towards the nature of a tertian, and extend almost to an intermission. But a *semi-tertianary* fever he calls that which is a continued quotidian, (that is to say, which remits indeed, but does not entirely intermitⁿ,) or forms an intermitting tertian: and this kind of fever alone he would have so called, because it is only a tertian during one half of its time; whereas continual remitting fevers arising from the fits of a tertian repeated or continued, are altogether of the nature of a tertian. He seems to have been the

¹ Quotidianæ vero variæ sunt, &c. Rursus aliæ sic desinunt, ut ex toto sequatur integritas: aliæ sic, ut aliquantam quidem minuatur ex febre, nihilominus tamen quædam reliquæ maneant donec altera accessio accedat: ac sæpe aliæ vix quidquam aut nihil remittunt, sed ita, ut cæpere, continuant. Deinde aliæ fervorem ingentem habent, aliæ tolerabilem: aliæ quotidie pares sunt, aliæ impares; atque invicem altero die leniores, altero vehementiores, &c. *Ibidem.*

^m Comment. 2. in lib. vi. Epidem. Charter. Tom. IX. p. 410. De Febribus, lib. ii. cap. 2. Charter. Tom. VII. p. 128, 129.

ⁿ Galen de febribus, lib. ii. cap. 7. Charter. Tom. VII. p. 135.

he more careful in making this distinction, because he derived the origin of continual fevers from purrid phlegm, but of tertians from yellow bile^o; and therefore he would have each of these causes distinctly regarded in the cure of fevers, though only one disease arises from them mixed together, namely, a semi-tertian fever. Nay, it does not seem improbable, that sometimes an acute continual fever may be mixed with an intermitting tertian or quotidian, so as to produce another sort of semi-tertian fever, and that of the worst kind; since while the continual fever goes on in a direct course, there is every, or every other day, a new fit of the intermitting fever joined with it; whence all the disorders are increased. Galen seems to have been acquainted with this complication of an intermittent with a continual fever, where he treats of compound and mixed fevers; for thus he expresses himself: *Fevers are indeed more especially complicated with others of the same kind, or those of one species with those of another; but sometimes they are compounded with others of a different kind. For quotidians are joined with tertians, and those again with quartans: but for the most part the complication is of the same species; so that the same patient shall sometimes have three fits of a quartan, that is to say, a triplicate quartan. It is not at all difficult to discover these; but sometimes a fever of the intermitting kind is complicated with one that is continual, so as to make a very difficult and hardly distinguishable mixture^p.* I believe I have sometimes observed such an ardent fever, though rarely, in which there has been a manifest exacerbation every third day, while in the mean time the continual fever went on, constantly increasing during the intermediate

^o Ibidem, cap. 3. & 4. p. 126, 130.

^p Febres quidem complicantur maxime cum aliis ejusdem generis, vel minus speciei cum aliis ejusdem speciei; est vero, quod et differentes (complicantur). Nam quotidianæ tertianis, et his quartanæ; et ejusdem speciei inter se plerumque complicantur. Sic ut quandoque tres quartanæ periodos (id est, quartanam triplicatam) idem homo habeat. Sed hos quidem cognoscere, non est omnino difficile. Quandoque vero aliqua ex intermittentium genere cum continua complicatur, difficillimam et vix explorabilem faciens mixtionem. *De Crisibus. lib. ii. cap. 7. Charter. Tom. VIII. p. 416.*

mediate day. Perhaps such a complication may seem wonderful and scarce credible to many, in which fevers of such a different kind should continue united together without disturbing each other: but I saw a patient afflicted with a quartan, who was seized with a violent pleurisy, which was attended with an acute inflammatory fever; but in the mean time, during the whole course of this pleurisy, the quartan fever returned regularly at its usual times, nor was it disturbed at the coming on of this new disease, nor by the bleedings or other medicines used for the cure of the pleurisy.

The fever therefore, to which the name of *Semitertian* was given, seems to have been of three kinds: 1. The Tertian whose fits were so protracted that little or no intermission could be observed; and this was the Semitertian of Celsus: to which may be referred, that which became a continual remitting fever from the repeated fits of the Tertian. 2. The Semitertian of Galen, compounded of a quotidian continual and an intermitting tertian fever. 3. That which arose from the union of an acute continual fever with a tertian. But although each of these semitertians is dangerous, yet the second is worse than the former, and the third kind worst of all.

Since therefore those constitutions, or climates and seasons, which favour the production of intermitting fevers, are very frequent; and as autumnal intermittents, appearing late, frequently occasion, by the continuance or returns of their fits, continual remitting fevers, (see the comment to §. 727); therefore the reason is evident why such diseases are frequent: at the same time it may be understood, from what has been said, why such fevers are dangerous, and difficult to cure; as will still more evidently appear hereafter.

It may be asked therefore, Whether every continual remitting fever does not deserve the name of *ardent*? It is certain that there are many such fevers, which though they are always difficult to cure, are yet not attended with the most severe symptoms; and therefore they may be again called simply *continual remitting fevers*.

fevers. But the fevers of which a few die, but more escape, are called *ardent* by Hippocrates^o; who observes, that they prove more fatal in a wet or showery autumn. Galen^p makes an ardent heat, with an inextinguishable thirst, to be the characteristic signs of an ardent fever. But concerning these and the other primary symptoms which attend an ardent fever, we shall treat in the aphorism next following.

§. 739. **T**HE chief symptoms of this fever are, A heat almost burning to the touch, unequal in different parts, but the most ardent about the vital organs, (but often more remiss in the extremities, or even sometimes with a coldness there), the air itself breathed out being almost scorching; a dryness of the whole skin, nostrils, mouth, and tongue; a thick, short, and laborious respiration; the tongue dry, yellow, black, parched up, and rough; unextinguishable thirst, sometimes going off suddenly; an aversion to food, with sickness and vomiting; a sense of anguish, restlessness, and great weariness; a slight cough, with a squeaking voice; a delirium, frenzy, perpetual watchings, dozings, convulsions; and exacerbations of the fever upon irregular days, or at unequal distances.

[A heat almost burning to the touch.] This fever takes its name from its great heat: but in what manner this heat appears to the touch of the physician in such patients, was said before in the comment to §. 731; namely, that it is sharp or uneasy to the sense, together with the dryness; and not moist or vaporous, as sometimes appears in the height of intermittents and other fevers of a milder nature. Hence Aretæus says^a, that the fiery heat of an ardent fever is very sharp or

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dry,

^o Epidem. r. Charter. Tom. IX. p. 64.
 in lib. iii. Epidem. Charter. Tom. IX. p. 272.
 Sign. Morb. Acut. lib. ii. cap. 4. p. 16.

^p Commentar. 3.
^a De Caus. et

dry; and that the patients covet to touch every thing cold, as the walls, pavement, clothes, &c. to abate the troublesome heat. But it is very rarely that such a heat is equably diffused throughout the whole body, and not at all except in the beginning of such fevers: for it is a good sign in diseases for the body to be equally hot, and soft or moist, as we observed before at §. 698; but in ardent fevers all the very worst signs usually appear, when there is a most intense heat perceived about the vital viscera, and when towards the extremities of the body the heat is more remiss, or even a coldness is observed instead of it. For since the febrile heat arises from the great motion of the humours from the heart, and the great resistance of the vessels against the heart, those resistances will be increased, when the most fluid parts of the humours are dissipated by heat, and the rest of the mass thickened or dried, (see §. 689) then the blood cannot be propelled to the extremities of the body with its due force and quantity; and as the blood, being now almost rendered impervious, is only moved by the vessels and viscera thro' the heart, it is evident a coldness of the extremities must be always of the worst import. Hence Hippocrates^b ranks a burning heat in the internal parts, joined with a coldness of the extremities, among the signs of an ardent fever.

But since, when the motion of the blood is impeded through many of the vessels of the body, it must pass through those which remain pervious with a so much greater velocity; and since, as long as life continues, the blood must be driven through the lungs from the right to the left ventricle of the heart with a very rapid motion, being rendered more dense or thick from a dissipation of its more fluid parts, it will suffer a greater attrition in the pulmonary arteries, as it passes thro' their narrow extremities, whence an intense heat will be produced in the lungs. But as the air very soon grows hot upon being received into the heated lungs by inspiration, when it is expired again it will seem

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^b De Affectionibus, cap. 3. Charter. Tom. VII. p. 622. De morbis, lib. i. cap. 12. *ibid.* p. 548.

to be extremely hot; which may be best perceived by applying the back of the hand against the air as it is blown through the nostrils and mouth in expiration, when it will be offensive by its troublesome heat as if it was discharged from a hot furnace. In this sense the expired air is said to be *burnt*; and Aretæus even does not scruple to say^c, that those afflicted with an ardent fever *breathe out fire*.

A dryness of the whole skin, nostrils, mouth, and tongue.] We before enumerated dryness among the effects of febrile heat, §. 689: since therefore there is a great heat in an ardent fever, it is evident that the parts of the body which ought naturally to appear moist must become dry. But this dryness arises partly from a dissipation of the most thin and watery juices of the blood by the febrile heat; and partly because the rest of the blood becoming impervious, and hesitating in the larger vessels, distends them so as to compress the adjacent smaller vessels: and therefore in such patients the skin appears rough and dry, because the subcutaneous vessels distended with impervious blood compress the very subtle exhaling vessels, while at the same time there is a deficiency of the thinner parts of the blood. The same is also true in the eyes, nose, mouth, and tongue. Hence Hippocrates says, that they perish with dryness who die of an ardent fever, as we observed before in the comment to §. 100.

A thick, short, and laborious respiration.] There are three times to be considered in respiration; that of inspiration, expiration, and the intermediate space betwixt inspiration and expiration; which last is by Gallen^d called the *time of rest*, where he endeavours to explain what kind of respiration may be properly termed *thick* or *dense*. For as olive-trees or vines are said to be planted thick when they are at a small distance from each other, and thin if there is a large space left betwixt them; therefore in this sense he would have us to understand a thick respiration. *For as the respi-*

^c De Curatione Morbor. Acutor. lib. ii. cap. 3. p. 100.

^d De Respirat. Diffic. lib. i. cap. 2. Charter. Tom. VII. p. 221.

ration itself is compounded of contrary motions, distinguished from each other by stops of rest, a shortness of those stops of rest will render the respiration thick, as the length of them will render it rare^e. The thickness therefore, or rareness, of the respiration, respects the intermediate space of time; but the quickness and slowness belong properly to inspiration and expiration. For as swiftness and slowness are terms properly relative to motion, so is thickness or rareness with respect to quantity at rest^f. But a large or small respiration denotes a different dilatation of the respirative organs. The respiration therefore which is thick and short, denotes a quickness of the inspiration and expiration, and that there is but a very short space betwixt those contrary motions. But a laborious respiration denotes difficulty and trouble in the performance of those motions; concerning which, see what has been said at §. 734. But since there is so great a burning heat about the vital organs, and the blood is moved with great rapidity through the lungs, being in a manner roasted by the intense heat, it will meet with great difficulty in passing thro' the narrow extremities of the pulmonary artery; whence the reason is evident, why these unhappy patients breathe so quick and with so much labour, namely, that they may receive an agreeable coolness from the inspired air, and forward the course of the blood thro' the lungs.

The tongue dry, yellow, black, parched up, and rough.] In a healthy person the tongue and all the internal parts of the mouth are continually moist; but when the body is tortured with the intense heat of an ardent fever, all these parts become dry: hence Hippocrates^g in several places ranks a dryness and roughness of the tongue among those appearances which are observed in an ardent fever. For the extremities of
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^e Quum enim ipsa respiratio ex contrariis motibus per quietes distinctis composita sit, densam ipsam reddet brevitatis quietum, raram vero longitudo. *Ibid.*

^f Quemadmodum enim motui propria sunt celeritas et tarditas, ita et quantitati quietum raritas et densitas. *Ibid.*

^g De Morbis, lib. i. cap. 12. Charter. Tom. VII. p. 548, et lib. ii. cap. 25. *ibid.* p. 576. et lib. iii. cap. 6. *ibid.* p. 584,

The smallest exhaling vessels placed in the surface of the tongue, being deprived of their juices, become dry and dead; or, being stuffed up with impervious juices, and thrust forward by the impulse of the vital blood, and clogging behind, they will stick out beyond the surface of the tongue, and form that *foulness*, as it is called, which appears first yellow, then brown, and afterwards often turns to a perfect black, the extremities of these small vessels deprived of their juices being rendered gangrenous. If now at the same time there is a great dryness, so as to render the tongue rough and unequal, it is always one of the worst presages, because we thence know that the surface of the œsophagus, stomach, and intestines, are affected in the same manner; and therefore that the ingested liquors will meet with a very difficult passage into the body, as the mouths of the absorbing veins being corrugated and dried up refuse them admittance, while in the mean time the intense heat and agitation of the blood call aloud for a great quantity of diluent fluids. Aretæus^h likewise seems to have remarked, that the tongue points out the internal state of the body, more especially if we read the obscure text agreeable to the ingenious improvement of the celebrated Petiteⁱ: for then Aretæus, after having said that the tongue is rough, dry, and black in an ardent fever, adds, *Hæc enim (lingua) omnia interna significat*; “for this part, the tongue, represents all that are internal.” Hence it is evident, that the foulness appearing on the surface of the tongue does not arise from smoky vapours ascending upward from the stomach and adhering to the tongue, as was formerly taught in the physical schools. Even Helmont judiciously opposes this error, when he says, *The dryness and foul crust of the tongue in fevers, is not therefore the effect or sign of an exhalation from the stomach, (even not digesting drink), discharged upward: but it is from a deficiency of the discoloured lymph or moisture, or from a scantiness of its discharge*^k. But we begin to conceive the

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first

^h De Curatione Morbor. Acut. lib. ii. cap. 3. p. 100. C.

ⁱ Ibid. in notis, uti et p. 255.

^k Non est ergo lingue ariditas, crustataque ejus sordes, in febribus effectus.

first hopes of recovery in these malignant diseases, when something of a moisture appears upon the tongue; for then the crust formed by the dead extremities of the vessels becomes soft, turgid, and raised up, separating from the living parts by the impulse of the vital humours, perfectly in the same manner as in the separation or casting off of other gangrenous parts. It then often happens that the tongue, which was before dry and rough, but not yet black, throws up a crust, which beginning to separate from the subjacent parts of the tongue, then puts on a black colour; but then under this crust, and in several parts betwixt the fissures, there manifestly appears a moisture as a happy sign; and then such a blackness of the tongue likewise accompanied with a moisture, is not at all a bad sign, but bids us hope for the best, in the same manner as the parts corrupted by a gangrene turn the most black when they begin to be separated and thrown off from the living parts. From what has been said, it is evident why Hippocrates, treating of an ardent fever, says, *The colour of the tongue is, during the first time of the fever, like that which we usually observe, but is very dry; but in the time of the increase, it grows hard and rough, thick and black. If now these appearances happen towards the beginning of the disease, they denote a more speedy termination of it; but if they happen later, they denote a more slow termination*¹. Thus he describes the successive changes of the tongue; mentioning that it grows thick and black in the last place, and from thence takes his sign of the future event of the disease; and adds, that the tongue is not dry as it was in the first stage of the disease: whence it seems very probable, that the tongue then appears to be moist when it grows thick and black; for when those dry crusts begin to grow

fectus, sive indicium exhalationis e stomacho (etiam potum non coquente) sinitum delatæ: sed est defectus laticis deturpati, vel egestate penuriosi. *In capitulo, Latex humor neglectus*, n^o 28. p. 305.

¹ Color linguæ primo quidem tempore, qualis esse consuevit, verum valde sicca est; procedente vero tempore induratur, et exasperatur, et crassefcit, et nigrescit. Si sane per initia hæc contingant, celeriores judicationes fiunt; si posterius, tardiores. *De Morbis, lib. iii. cap. 6. Character. Tom. VII. p. 584.*

grow moist and rise up, the tongue not only appears thicker, but the patient also frequently complains that the tongue then feels as if it was increased in its bulk, and covered over with a sort of wool. For so long as that great dryness continues in the tongue, there can be no hopes of a crisis. This opinion is further confirmed by what we read in his Coan Prognostics, where we find him repeating almost the same with what we have before cited; and then he adds as follows: *But in process of time the tongue becomes rough, livid, and fissured, which is a fatal sign. But if the tongue looks very black towards the fourteenth day, it denotes a crisis about to happen. The most dangerous colour of the tongue is a black mixed with a pale green^m.* Thus he observes, that a very black tongue denotes a crisis, namely, when it is joined with moisture, as is evident from what we said before; but, that a black tongue with dryness is the most dangerous. For unless we thus explain this prognostic, the terms directly contradict each other.

Unextinguishable thirst sometimes going off suddenly.] Where we treated of thirst as a febrile symptom, §. 636, it appeared, that drought denoted an imperviousness of the humours; or else that it was occasioned by an acrimony, either saline, oily, bilious, or alkaline, or from putrid excrements in the first passages. But in an ardent fever great thirst attends, as we demonstrated before; and the thinnest parts of the blood being dissipated, the rest become impervious. Moreover, by such an intense heat (see §. 689), the saline and oily parts of the blood are rendered more acrid and inclined to putrefaction: the bile is first corrupted, and then is lodged about the stomach and adjacent parts, so as to form putrid excrements in the first passages. It is therefore evident, that all the causes of thirst concur in an ardent fever; and hence also a burning heat with intolerable thirst are reckoned by Galen as the pathognomic signs of an ardent fever, as

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^m Progressu autem temporis lingua exasperatur, et livescit, et rumpitur: lethale. Si vero vaide nigrescat, in decimo quarto die crism futuram significat. Periculosissima est nigra et (χαλκρη) cum virore pallida. N^o 230. Charter. Tom. VIII. p. 865.

we said before under the preceding aphorism. An ardent fever is therefore seldom observed without an intense thirst, unless there are signs at the same time that the brain is injured. Therefore, when Hippocratesⁿ, in describing ardent fevers, says, that they were without intense thirst; he adds likewise, that the patients were comatous from the beginning; and, in the exacerbations, forgetful, regardless, or speechless: all which denote that the actions of the brain were disturbed, and consequently oppressed; so that although the causes of thirst were present, yet the mind could not perceive the thirst. In another place he says, *That those who are troubled with slight dry coughs in ardent fevers, are generally not much troubled with thirst*^o. But Galen observes, in his commentaries to this aphorism, that the irritation of such a slight cough derives a greater quantity of moisture to the parts, and therefore that this is the cause why such patients are less thirsty; which seems very probable. But when the functions of the brain are disturbed by the violence of the fever, or distension of the vessels of the encephalon with impervious blood, the thirst is often suddenly removed, though all the causes of it continue in the body, and are even frequently increased. But such an abolition of the thirst is justly esteemed one of the worst signs, (as is evident from what was said before in the comment to §. 637).

[An aversion to food, with sickness and vomiting.] It is very common for the worst fevers, among which those of the ardent kind hold almost the first place, to injure almost all the functions of the body at one and the same time: no wonder therefore if those are depraved whose office it is to receive, retain, and digest the food, &c. But more especially these symptoms attend ardent fevers, because all the humours so much incline to putrefaction by the increased heat; and above all, the bile is more especially thus inclined to degenerate, as appears from the fetid smell of the mouth

ⁿ Epidem. lib. iii. Charter. Tom. IX. p. 271, &c.

^o Quos in febribus ardentibus plerumque leviter proritant tusses aridæ, non admodum siticulosi sint. *Aphor. 54. sect. iv. Charter. Tom. IX. p. 163.*

mouth in these diseases, the disagreeable taste, unquenchable thirst, foulness of the tongue, and most fetid stools, &c. And that this is the most frequent cause of sickness and vomiting in fevers, appears from what has been said before at §. 642, no 1. Add to this, that when such an intense burning heat is perceived in this disease about the præcordia, the liver, stomach, or other adjacent viscera, are often inflamed; and from thence again the same symptoms may arise, as we demonstrated before in treating of a Nausea and Vomiting. But it is remarkable, that such patients have an aversion chiefly to fish, flesh, eggs, and the like, which spontaneously incline to putrefaction, and have a desire almost for nothing but water, and acid or acedent liquors. But sometimes it happens that they reject every thing that is given them, which is a very bad sign; and which Hippocrates^P observed to have happened in those continual fevers, which he says never intermit, but every other day resemble an intermitting tertian by the return of exacerbations or fits; which therefore may be justly called *ardent*, since he tells us they are accompanied with the same most violent and constantly attending symptoms: but he remarks, *quod hæc febres maximum et perpetuum signum comitabatur, quod cibos omnes plerique aversarentur, iisque maxime quibus cætera quoque perniciofa existerent*; “that these fevers are attended with a very considerable and constant sign, namely, that the patient has for the most part an aversion to all sorts of food, and this more especially where the other pernicious symptoms also attend.”

[Anguish, restlessness.] A thick, short, and laborious respiration, which we observed before to be an attendant on an ardent fever, denotes that the blood has a difficult passage through the smallest extremities of the pulmonary artery; and therefore it will be also joined with anguish, (as is evident from what was said at §. 631). But also the same disorder sometimes arises about the liver in an ardent fever, when the blood, being rendered too thick by the febrile heat, cannot pass

pass through the smallest extremities of the vena portarum; and therefore this will be another cause of anguish. Moreover, it is proved, under the title of Anguish in Fevers, that putrid bile, collected about the præcordia, has sometimes produced the very worst kind of anguish; and as this frequently takes place in an ardent fever, the reason is evident why anguish and restless tossings of the body almost constantly attend in this disease, as Hippocrates remarks in several parts of his books of Epidemics. But that this is a bad sign in these fevers, he observes, when he says, *Tertianary fevers with anguish are malignant* ^a.

Great weariness.] When people feel a soreness all over them after too much exercise or motion of body, as if they were bruised, more especially if they have not been used to exercise, and if at the same time they are faint from the over fatigue, then a great weariness or lassitude is said to attend. But when there is such a troublesome sense in fevers, it denotes that the humours are agitated with a most rapid motion, or that the blood being rendered impervious by an inflammatory thickness, cannot pass but with difficulty through the ultimate extremities of the arteries, (as we said before in the comment to §. 734). From what has been already said, it is evident that these causes take place in an ardent fever: whence Hippocrates ^r ranks great lassitude among the symptoms of an ardent fever; and which he calls *osteocopic*, when the body is shook so that the pain extends even to the bones. When therefore such a lassitude or sense of weariness attends from the beginning of an ardent fever, and holds for a long time, we know that there is an inflammatory thickness of the blood, which continuing and daily increasing by the disease, will afterwards be very difficult to dissolve. But if the patient escapes from these disorders, we are to expect an alteration of the tenacity or thickness of the humours into matter, and a translation of it into various parts of the body. For this reason,

^a Tertianariæ febres cum anxietate, malignæ. *Coac. Prænot.* n^o 33. *Charter. Tom. VIII.* p. 854.

^r De victu in morbis acutis. *Charter. Tom. IX.* p. 118.

on, perhaps, Hippocrates says, That *those afflicted with lassitudes in fevers have abscesses formed at the joints, and more especially about or behind the jaws*^s. But it will appear hereafter at §. 741, parotids are frequently formed in ardent fevers.

[Slight cough.] That this accompanies an ardent fever, was lately observed to us in treating of the insupportable thirst in this disease. But such a slight cough may proceed from a turgescence of the blood-vessels of the lungs, distended too much with impervious blood, so as to compress the air-vessels of the lungs, that their surfaces rub against each other; for then such a dry and irritating cough will attend, as is observed in a peripneumony. But Hippocrates^t has observed, that an ardent fever loves to turn into a peripneumony, and that few then escape; and therefore a slight cough arising from this cause affords a very bad sign. Moreover Sydenham^u has observed, that the patient is sometimes fatigued with a troublesome cough in continual fevers throughout the whole course of the disease: and he believed that this happened when thin fluxile humours were expressed through the exhaling vessels, by the tumultuous motion of the blood from the fever, into the air-vessels of the lungs; or by a dilatation or distraction of those exhaling vessels, whence the very sensible membranes of the trachea became continually irritated: but he confesses in the mean time, that he did not apprehend much danger from this symptom. Of this kind seem to have been those coughs which Hippocrates tells us he has observed in ardent fevers, when he says, *These fevers were indeed attended with coughs, but I cannot say that either mischief or utility proceeded from the cough*^x.

[A squeaking voice.] This is the sharp or shrill voice which Hippocrates^y condemns; and Hollerius makes this

^s Lassitudine per febres laborantibus, ad articulos, ac maxime circa maxillas, abscessus oriuntur. *Aphor.* 31. *sect.* iv. *Charter.* Tom. IX. p. 152.

^t De affectionibus, cap. 3. *Charter.* Tom. VII. p. 622.

^u *Sect.* i. cap. 4. p. 83.

^x Tussis quidem febrium erant comites, scribere autem non possum rationem, vel utilitatem, quæ a tussis fiebat. *Epidem.* 1. *Charter.* Tom. IX. p. 50.

^y In *Prorrhet.* lib. i. *Charter.* Tom. VIII. p. 732.

this so fatal a sign, (as we observed in the comment to §. 609, n^o 2.) that he assures us he never knew one recover after speaking with such a voice. But this happens when, the fauces being greatly dried up, the voice does not pass through soft and moist membranes as in health: but reverberates, as if it was driven through a dry, smooth, metalline tube. It is not easy to describe in words what this kind of voice is; but a person who has once heard it in a patient, will easily distinguish it again.

Delirium, frenzy, perpetual watchings, dozings, convulsions.] For all these denote that the brain is injured: and it is evident from what was said in the history of these febrile symptoms, and what will be said hereafter when we come to treat of a Frenzy, that such causes exist in an ardent fever; or if they do not attend in the beginning of the disease, they may all of them be produced by the fever itself and its intense heat. Hence also Hippocrates in several places of his epidemics, and in other parts of his works, mentions these as symptoms of an ardent fever.

Exacerbations of the fever on unequal days.] It was said before, at §. 738, from Galen, that an exquisite ardent fever retains all the signs of an exquisite tertian; and that it differs only in not invading with a rigor or shivering, and in not coming to perfect intermissions; and that this was the reason why he ranks an ardent fever not among the synochi or continent, but among the continual remitting fevers. But in the fevers which he calls *tertianary* and *semi-tertianary*, which he likewise refers to an ardent fever, if they are attended with the bad symptoms before enumerated, the exacerbations happen always on unequal days. Hence the ardent fever seems also to have something of the nature of an intermittent: and from hence frequently, when such fevers are extended to a great length, they afterwards change to intermittents; and even sometimes, as we said before, when intermitting fevers spread epidemically, and appear early in the summer-months, they often pass under this appearance. But it will appear at §. 741, that sometimes also in ardent fevers the exacerbations happen on equal days, and

and with a very bad sign; as the patient's strength is more weakened by the frequent and repeated new accessions: and yet then for the most part the exacerbations attend on unequal days; as, for example, when an intermitting quotidian or double tertian is joined with a continual fever; or when, the fits of such a fever being prolonged, it never comes to an entire remission.

§. 740. **T**HE cause of this fever is, generally, too much labour, long journeys, the heat of the sun, thirst continued for a long time, the use of heating fermented liquors, sharp spices, excessive venery, immoderate fatigue, more especially in the summer-time, &c.

As an ardent fever acknowledges, for its proximate cause, the blood deprived of its more fluid and mild parts (as we shall observe at §. 742.) an inflammation throughout the body, with great strength of the vital powers, ensues: it is therefore evident, that among the causes may be enumerated every thing which inspissates the blood by dissipating its thinnest parts, renders the humours more acrid, or increases their motion by a stimulus. For by such things an ardent fever may be raised, even in the most healthy person; more especially if the epidemical constitution or season of the year favours the production of these fevers. Hence it is evident, why too much labour, more especially to people not accustomed to it, and the making of long journeys, produce ardent fevers, especially in the violent heat of the sun; as also from thirst a long time supported: and hence Hippocrates^a says, that an ardent fever generally arises after long journeys and continued thirst; and reckons ardent fevers among the diseases of the summer-time^b. Also the like causes with those mentioned in the text are assigned to an ardent fever by Galen^c. When generals are obliged to march and move their camps in the summer-time, and

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^a De Victu in Morbis Acutis. Charter. Tom. XI. p. 116, &c.

^b Aphor. 21. sect. iii. Charter. Tom. IX. p. 116. ^c Comment. 2. lib. i. Epidem. Charter. Tom. IX. p. 44.

more especially if there is scarcity of water, sometimes the whole army is afflicted with this kind of fever; whence an ardent fever is justly ranked among the diseases of the camp. But, among the humours inhabiting the body, the ancient physicians accuse the bile more especially as the cause of ardent fevers. Hippocrates^d says, that an ardent fever arises from a commotion of the bile: and in another place^e he remarks, that bilious people are more readily invaded by this disease. Aretæus^f tells us, that the urine is extremely bilious in an ardent fever. But Galen^g testifies, that not an accumulation of the bile in any part of the body, but only about the stomach, kindles an ardent fever; especially its orifice, and the lower parts of the liver, namely, where the biliary ducts, pylorus, and intestinum duodenum, are placed. But we know that the bile becomes more acrid and semi-putrid by too much labour, with the summer's heat, and the other causes mentioned in the text; and therefore the reason is evident, why an ardent fever may arise from these causes. Thus it is observed, that, after the most scorching heats of the summer, in autumn semitertianary fevers have raged with the most violence, and that all such patients have discharged a great quantity of corrupt bile both upwards and downwards, whether the evacuation was excited either by nature or art. For the rest, we have treated of the causes mentioned in this aphorism in the comment to §. 586, where we considered all those as the particular causes of fevers.

§. 741. **T**HE course of an ardent fever is as follows: It very often proves fatal on the third or fourth day, and seldom passes over the seventh day: if it is a perfect *causos* or ardent fever, it often goes off with an hæmorrhage; which, if small on the third or fourth day, is a fatal

^d De Affectionibus, cap. 3. Charter. Tom. VII. p. 622. ^e De Morbis, lib. i. cap. 12. Charter. Tom. VII. p. 547. ^f De Causis et Signis Morbor. Acutor. lib. ii. cap. 4. p. 16. ^g Commentario 1. in lib. i. Epidem. Charter. Tom. IX p. 18.

Fatal sign: This may be foretold from a pain in the neck; a heaviness in the temples; a darkness or mist before the sight; a labouring motion of the præcordia, without a sense of pain; involuntary tears, without any other fatal sign; a redness in the face, and itching of the nose: and this hemorrhage is the best when it happens on a critical day. Sometimes the fever goes off likewise on a critical day, by vomiting, a diarrhœa, sweat, urine, or a thick spitting. A return or increase of the fever on equal days is very bad, if it happens before the sixth: In this case, a black urine, thin, or small in quantity, is fatal; a spitting of blood is fatal, as also is bloody urine; the deglutition or swallowing being affected is bad; a coldness of the extremities is very bad, as also a redness and sweating of the face; a swelling under the ears not coming to suppuration is fatal, as also is too great a flux from the bowels; when the fever, with a trembling, turns to a delirium, or to a peripneumony with a delirium, it then ends in death. This kind of fever is the worst, which arises after severe gripes of the bowels: but it sometimes goes off critically, with a rigor, or cold shivering.

Since every fever terminates either in death, health, or another disease, (see §. 591), it will be therefore of use for us to see what the observations of physicians teach concerning the various exit of this dangerous fever, and what changes happen when it tends either to a good or bad end. For thence may be had the best prognosis; and at the same time may be derived the curative indications, pointing out by what method and by what remedies the fatal exit of this disease may be prevented; and, on the contrary, those endeavours of nature promoted which incline to health.

It very often proves fatal on the third or fourth day,

and seldom passes over the seventh day, if it is a perfect *causos* or ardent fever.] Since so many and such malignant symptoms attend an ardent fever, as we have already seen at §. 739, it will not seem wonderful to any one, if nature being overcome should in a little time sink under the disease, and the patient expire. *For malignant fevers, and such as are attended with the most violent symptoms, kill on the fourth day or sooner^a.* But the first term is fixed by Hippocrates in the most violent disease to this space from the first attack; but the second class he observes may be extended to the seventh day; and within this space is an exquisite ardent fever limited by Galen. For, as we observed before at §. 738. he compares an exquisite tertian with an ardent fever, from which he says the latter differs only in its not invading with a rigor or shivering, nor in coming to a perfect remission. Hence, as an exquisite tertian terminates in seven fits or periods; so an exquisite ardent fever, as he tells us, comes to to an end of necessity within the first week^b. But the swift course of the most acute disease, and its fatal event, we learn from the number and violence of the symptoms. *For when the disease is peracute, the patient has immediately extreme anguish or sufferings^c.* And hence Hippocrates has distinguished the diseases which swiftly tend to health or destruction, when he says, *That those which come to a crisis in the shortest time are more easily foreknown, as they differ widely from each other, even at the beginning. For the patients who are to survive breathe easily or without pain, get sleep in the night, and have other signs of the greatest security; But those who are to perish breathe difficultly, are delirious, watchful, and attended with other signs of the worst import^d.* When therefore all the symptoms are very violent,

^a Malignæ enim febres, et quæ cum gravissimis sunt signis, quarto die vel prius interficiunt. In *Prognost. Charter. Tom. VIII. p. 663. 664.*

^b Galen. de *Crisib. lib. ii. cap. 6. Charter. Tom. VIII. p. 415.*

^c Quam enim morbus peracutus est, statim extremos habet labores. *Aphor. 7. sect. i. Charter. Tom. IX. p. 12.*

^d Qui vero brevissimo tempore judicabuntur, facilius prænoscentur, maxime namque ab initio inter se dissident. Qui enim superfuturi sunt, facile spirant, dolore vacant, noctu dormiunt, et alia securissima habent signa. Qui vero pereunt, difficile spirant, delirant, vigilant, cæteraque habent signa pessima. In *Prognost. Charter. Tom. VIII. p. 667.*

violent, and continually increase from the beginning of the fever, we foresee that death will follow in a short time. But when an exquisite ardent fever, or one that is continual, or continual but daily remitting, is joined with a tertian, which excites new exacerbations or fits of increase every third day, while in the beginning of such a disease the preceding symptoms are more violent, it is evident, that, the patient's strength being broke by the swiftness and numerous symptoms of the disease, there is danger lest the patient should be extinguished in the coming on of a new fit. Galen^e even observes, that frequently the very hour of death may be predicted by the physician, if he does but carefully attend to the time of the exacerbations in these diseases; and if he also distinguishes whether the patient finds himself worse in the beginning, height, or declension of the fits. For sometimes in these worst diseases, as he well observes, the extremities grow so cold in the beginning of the exacerbations that they can hardly be reduced to their natural warmth, the pulse is small or almost imperceptible, &c.; others, in the height of the disease, have a delirium, coma, or intolerable anguish and burning heat, &c.; and some in the declension of the disease have fainting fits, cold sweats, and a small, unequal, and obscure pulse, &c. Now according as these most malignant symptoms are observed in this or that stage of the exacerbation, so it will be probable that the patient will expire about the same time of the exacerbation or fit next following.

But the fourth day is often fatal, more especially in the most violent ardent fever, whose fits of increase happen on equal days; for then the exacerbation does not fall out upon the third, but on the fourth day. Hence Hippocrates observes, *That those fevers which are exasperated on equal days, come to a crisis upon equal days; but those whose accessions or fits happen on unequal days, such terminate on uneven days. But the course or circuit of those terminating upon even days is chiefly upon one that is critical, as the fourth, sixth,*

H 3

eighth;

*eighth, &c. but the circuit of those coming to a crisis upon unequal days is more especially the third, fifth, seventh,^f &c. Hence he remarks^g, that in the worst kind of the ardent fever, the symptoms were most violent on the fourth day, attended with sweats, in some measure cold, without any warmth in the extremities, which continued livid and cold, without any thirst: it is therefore evident, that the patients then hesitate as it were in the agonies of death; and if they yet survive that fit, he observes, they perish the next, namely, on the sixth day. Another difference with respect to the fourth day arises from hence, that frequently the fits of increase which happen on uneven days, appear before their usual time: hence, when the disease begins on the first day with a fit of increase, the patient seems to be a little relieved on the second day; but then on the beginning of the third day, or towards the latter end of the second, a new fit comes on; and then the third fit appearing still sooner, falls out upon the fourth day, and frequently the patient expires in the beginning of such an exacerbation. Whence, in another place, Hippocrates says of continual fevers increasing on the third day, *That if on the fourth day the patient has a fit like that which appeared on the third, he is in danger*^h.*

When therefore there is a true and exquisite ardent fever, attended with intolerable burning heat, inextinguishable thirst, and other symptoms of the worst kind, it seldom exceeds the seventh day: but when all the symptoms are milder, the fever being yet of the same nature, namely, continual remitting, it is often called *ardent* notwithstanding; and though such a fever is dangerous, yet it does not so soon destroy the body, but runs out to a greater length before it terminates either

^f Quæ diebus paribus exacerbantur, ea paribus judicantur; quorum vero accessiones diebus imparibus fiunt, diebus imparibus judicantur. Circuituum autem diebus paribus judicantium primus est decretorius quartus, sextus, octavus, &c. circuituum vero imparibus diebus judicantium primus est tertius, quintus, septimus, &c. *Epidem. 1. Charter. Tom. IX. p. 95.*

^g Ibid. p. 70.

^h Si quartus dies tertio quidquam in his ipsis simile habuerit, in periculo versatur æger. *De Viâ Morbor. Acut. Charter. Tom. XI. p. 149.*

either in death, another disease, or in health. Thus Hippocrates ^d describes an ardent fever, when he says, that it terminates or comes to a crisis at the soonest on the ninth or tenth day, but at longest on the fourteenth. But a fever of a much milder nature, which yet is called *ardent*, he says, in another place ^e, terminates within the space of seventeen days. In his Coan Prognostics he says, *That ardent fevers come to an end in fourteen days, either by relieving the patient or extinguishing life* ^f. But in the text he does not call this fever simply a *causos*, or exquisite ardent fever; but *causodes*, which denote milder fevers of the same kind; which last term occurs in several places, where such milder fevers are described in his works. But in other places, Hippocrates has used these words promiscuously. Thus, where he relates that extraordinary case of a patient, where the disease terminated on the hundredth day, he says, “that the patient was “taken with an acute fever of the ardent kind;” but, towards the end of the history of the disease, he says, “The *causos* or ardent fever perfectly terminated on “the hundredth day:” from whence it plainly appears, that the same disease, though of so long continuance, is by Hippocrates called *causos* and *causodes* ^g. But in another patient ^h, who perished on the hundred and twentieth day of such a fever, though it appeared from the history of the disease, that throughout its long course the patient was frequently without the fever for some days, and afterwards had returns of it again; yet in the end of the history, where the malignant symptoms attending throughout the whole course of the disease are enumerated, he adds, “That the patient “laboured under a continual ardent fever.” But he seems in such cases to retain the name of the disease which he had given in the beginning, even tho’ the fever afterwards degenerates. For it is to be more especially

^d De Affectionibus, cap. 3. Charter. Tom. VII. p. 622.

^e Epidem. 1. Charter. Tom. IX. p. 43.

^f Febres ardentes quatuordecim dies dijudicant, aut allevantes, aut perimentes. N^o 138. Charter. Tom. VIII. p. 859.

^g Epidem. 3. ægrot. 9. Charter. Tom. IX. p. 303, 304.

^h Ibid. ægrot. 1. p. 291.

specially remarked, that frequently all the solid and fluid parts are so changed during the first days of such fevers, that they greatly deviate from the laws of health; so that though the violence of the disease should afterwards remit, yet health does not always follow, but frequently another disease, and that very difficult to remove; and hence patients frequently are lost after escaping the first and greatest violence of the disease. But strictly speaking, they do not then die of an ardent fever; but of another disease, which is the effect and consequence of the fever.

It often goes off with an hæmorrhage.] Galen remarks, as we observed before upon another occasion, in the comment to §. 218. that where Hippocrates uses the term *hæmorrhage* only, without expressing the particular part of the body from whence it happens, that then he understands a flux of blood from the nose; and he says, it is proper to exquisite ardent fevers to terminate by bleeding at the noseⁱ. Therefore in this sense the general term *hæmorrhage* is to be understood in the text. It indeed seems very probable, that other hæmorrhages may be likewise of service; as when blood is discharged by the piles, or an eruption of the menses: even Hippocrates^k particularly remarks, that the menses flowed abundantly in many women afflicted with an ardent fever; and he observes, that none of them perished who had such a copious flux of blood either by the menses or nose. He even seems to have taken notice, that the epidemical fever which he there describes, had so strong a tendency to this discharge, that a great many virgins had then the first eruption of their menses while they lay ill of this fever; but all the pregnant women miscarried that he could observe afflicted with this disease. But in the mean time that hæmorrhage which comes from the nose is more frequent than the rest in ardent fevers, and more especially salutary^l; and therefore Hippocrates placed his greatest hopes in this evacuation, provided it was but sufficiently copious: but, on the contrary,

ⁱ Comment. i. in Epidem. lib. i. Charter. Tom. IX. p. 18.

^k Epidem. lib. i. *ibid.* p. 67.

^l *Ibid.* p. 65.

Contrary, in enumerating those accidents which happen to such who die of ardent fevers, he remarks, that there was no eruption of blood, but only a few drops distilled ^m, and that most of them perished who had not such a discharge of blood ⁿ. Thus in the patient ^o whose ardent fever terminated on the hundredth day, on the fortieth day there was a copious flux of blood from the nose; and afterwards the blood continued to flow in small quantities, and frequently even to the sixtieth day; and he remarks, that the deliria or ravings, deafness, and fever, were diminished; although this difficult disease would not be entirely subdued by that evacuation. But on the contrary, in another patient ^p who perished on the hundred and twentieth day, there was none of this salutary hæmorrhage from the nose; but on the eighth day of the disease only a small quantity distilled from the nostrils. From whence it appears, that in ardent fevers, which very swiftly run through their course, and in those rare cases where they degenerate into a lingering disease, a large eruption of blood from the nose is of great weight towards a cure.

Which if small on the third or fourth day is fatal.] For a large hæmorrhage is required in this most dangerous disease, so that sometimes it has flowed to the quantity of several pounds with very good success; although from such a great loss of blood the patient frequently remains weak afterwards. But when only a few drops distil on the third or fourth day, it is often a fatal sign: for then we know, that the violence of the fever is so great as to burst the arteries in the nose, or else to dilate their serous orifices so as to transmit the red blood, which in the mean time is become so thick or inspissated and inclined to concretion, that it immediately hardens upon the contact of the air, and stops up the passage which was procured for it. I have seen in such cases the drops of blood distilled from the nose, and received upon a handkerchief, to turn solid immediately. Hippocrates lays it down as

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^m Ibid. p. 70.

ⁿ Ibid. p. 66. et Epidem. 3. ibid. p. 275.

^o Epidem. 3. agrot. 9. ibid. p. 303. 304. ^p Ibidem, agrot. 1. p. 291.

a general rule in practice, *That critical signs not terminating the disease are partly fatal, and partly denote difficulty of the crisis*^q. Whence it is evident why so slight an hæmorrhage is so fatal a sign, since it is a fruitless attempt of nature to make a critical evacuation. Hence he pronounces *pusillas stillas (sanguinis) malas*, “small drippings of blood to be bad”^r: more especially if what distills is (*αγνερτον*) *sincere*^s; by which perhaps he intends very thick blood, immediately concreting without any separation of its more liquid part. And in another place, after having said that all those recovered of the epidemic fever who had a copious hæmorrhage from the nose, he adds, that in Philiscus, Epimanontes, and Silenus, (whose history he afterwards describes at large) there was a small quantity of blood distilled from the nose on the fourth and fifth day, and they perished^t. This he also confirms by many more instances in other patients. Thus, in the wife of Dromedas^u, a small quantity of blood distilled from the nose on the fourth day, but on the sixth day she died convulsed. In another patient^w, a small quantity of sincere blood flowed from the left nostril on the second day, as it also did on the fourth day; and this patient recovered, but with great difficulty, and with two relapses, the disease terminating at length on the fortieth day. But it is to be observed, that although this small dripping of blood is always to be suspected, yet it is less dangerous, if soon after, or on the following day, a large hæmorrhage ensues; as happened in Metones^x, who on the fourth day had twice a small dripping of blood from the right nostril; but on the fifth day a copious flux of blood followed from the left nostril, which with a sweat terminated the disease: but, even after the crisis, he observes to us, in the history of this patient, that blood frequently burst forth from the nose.

But

^q Judicatoria non judicantia partim lethalia, partim difficilis judicii. *Epidem.* 2. *Charter.* Tom. IX. p. 120.

^r Coac. *Prænot.* n^o 59. *Charter.* Tom. VIII. p. 855. ^s *Epidem.* 1. *ægrot.* 1. *Charter.* Tom. IX. p. 99. ^t *Ibid.* p. 65. ^u *Ibid.*

ægrot. 11. p. 114. ^w *Epidem.* 3. *ægrot.* 3. *ibid.* p. 224, &c. ^x *Epidem.* lib. i. *ægrot.* 7. p. 109.

But since, as we shall soon declare hereafter, that hæmorrhage from the nose is best which happens on a critical day; and as the fourth day is not so much reckoned among those which are critical, or at least not among such as are primarily so, but rather among the indicating days, as we shall soon demonstrate more at large; the reason is evident why the ancient physicians suspected an hæmorrhage, however large, happening on the fourth day. For, as we observed a little before, under the present aphorism, from Hippocrates, those fevers terminate on even days, which have their fits of increase on even days: and therefore, if such a critical hæmorrhage should happen on the fourth day, it demonstrates that the accessions or fits will happen on even days; which yet is to be esteemed as one of the worst signs in these fevers, as we shall demonstrate hereafter under the present aphorism. For this reason Hippocrates seems to have admonished us, That *the hæmorrhages which happen on the fourth day from the nose, make the crisis difficult or doubtful*^y. And in his Coan Prognostics, That *a flux of blood from the nose on the fourth day of an ardent fever is bad, if it is not attended with other good signs; but if it happens on the fifth day, it is less dangerous*^z. But must be observed, that he does not here speak of a slight dripping, but of a sufficient large flux. But there is an instance, in his epidemics^a, of a patient, who on the fourth day had a considerable flux of blood from the left nostril, which perfectly terminated the disease on the seventeenth day: but, as he observes in his Coan Prognostics, there was another good sign supervened; for on the same fourth day there was a small, but regular discharge of the menses.

Since therefore the ancients expected so much good from a copious hæmorrhage, more especially happening at a convenient time of the disease, it is no wonder

^y Quæ quarto die sunt hæmorrhagiæ (narium) difficilem judicationem faciunt. *Epidem. lib. ii. ibid. p. 168.*

^z In febre ardente fluxio (sanguinis) ex naribus quarto die mala est, si non aliud quid boni coinciderit; verum quinto die minus periculosa est. N^o 134. *Charter. Tom. VIII. p. 859.*

^a *Epid. 7. ægret. 134. Charter. Tom. IX. p. 600.*

der if they were fo careful to inquire after the figns which ufually precede this evacuation, and denote it to be fhortly at hand. They who in the cure of difeafes rafhly endeavour to govern nature, and, attempting every thing blindfold, commonly difturb the whole oeconomy of nature, fuch defpife a careful attention or obfervation of thefe figns in difeafes, believing themfelves able to perform, by large bleeding, every thing that could be hoped for from an hæmorrhage at the nofe. But they are very much deceived; fince numerous obfervations in the practice of phyfic teach, that a fpontaneous hæmorrhage from the nofe, happily cures difeafes which have been in vain attempted by bleeding from a vein. Bennet^b obferves, that a periodical hæmorrhage from the nofe protracts the fits of accelfion of the hectic in confumptions, and that it is much more efficacious for this purpofe than any repeated bleeding by the lancet; and has confirmed his opinion by practical examples. For, from the fuppreffion of an hæmorrhage at the nofe in a youth, there was a fputting of blood, together with the figns of a pulmonary confumption at hand; and which indeed was fo much the more dangerous, becaufe he had an hereditary difpofition to a confumption from his parents. Phlebotomy was of little fervice; but the hæmorrhage at his nofe returning, freed him from the great danger that was threatened. A man who was afflicted with a very dangerous quinfy, which not only threatened to intercept his fwallowing, but likewise refpiration, had been bled in the arms and feet, had been cupped in the nape of the neck and foulders, and had clyfters with many other things applied without effect; but afterwards the veins under the tongue being opened by incifion, gave fome hopes to expect the patient's recovery: But a very copious hæmorrhage following foon after from the nofe, quickly put the patient out of all danger. Many more inftances of the like kind might be alledged; but thefe may fuffice to demonftrate, how much the falutary efforts of nature in the curing of difeafes are to be preferred before thofe which are attempted by

^b In Theatro Tabidor. Exercitat. 5. p. 14, &c.

by art. Moreover, the blood being deprived of its thinnest parts in an ardent fever tends to concretion, and begins to stagnate in the arteries, whence it is accumulated in those vessels and distends them, while in the mean time they press out only the more fluid parts of the blood into the veins; whence it appears, that frequently by opening a vein, in such diseases, is removed that part of the blood only which is best disposed to flow through the vessels; whereas an hæmorrhage from the nose, discharging the blood from the arteries themselves, turns off the impetus and quantity of blood, more especially from the encephalon, whose functions in these diseases are usually so much disturbed. Hence, therefore, arteriotomy or cupping with scarification, promise more relief: but it is evident from what was lately alledged from Bennet, that an hæmorrhage from the nose has much more apparently relieved the patient.

The physician therefore will best consult his own reputation and the interest of his patient, if he is mindful of the admonition given by Hippocrates, so as to make himself acquainted with the signs by which the future alterations in diseases may be presaged. For by this means he will not only gain a greater confidence from his patient, which is a thing of the highest moment; but he will be likewise able to *undertake the cure in the best manner, who from the present symptoms can foresee the future accidents. For to cure all patients is impossible; otherwise this would be more desirable than the foreknowledge of future events, &c. For those who can be preserved, may be much better saved from a fore-sight of every accident long before the time of its happening; and besides this, the physician who can foreknow or predict the death or recovery of his patients, will free himself entirely from all blame* ^c.

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I

All

^c Curationem optime instituet is, qui ex præsentibus affectibus futuros præviderit. Sanos enim omnes agrotos efficere, impossibile est: id enim præstantius, quam futura prænoscere, &c. Namque et eos, qui ferri possunt, multo etiam melius servare poterit, ex longo tempore singula præmeditatus; et morituros et evasuros præcognoscens et prædicens omni prorsus culpa vacabit. *In Prognostic. initio. Charter. Tom. VIII.* 5583, &c.

All those signs ought therefore to be carefully remarked, which predict a salutary hæmorrhage from the nose in fevers, lest being ignorant of these we should sometimes disturb or hinder by remedies the discharge which is about to happen.

This may be foretold from a pain in the neck.] This pain in the neck is not very acute, but somewhat obtuse, with a sense of tightness: Whence in the Coan Prognostics we are told, *Capite gravati juxta sinciput dolentes, pervigiles, sanguinem effundunt, tum alias, tum si quid in cervicem contendat*, (συντείνῃ); "That they who
 " have a heaviness of their head, with a pain about
 " the forehead, with watchings, are about to have a
 " flux of blood, if there is a tension of the neck with
 " the other adjacent parts ^d." And in another place ^e there is almost the like passage; namely, καὶ ἢν τι ἐν τραχηλῷ ἐντείνει, *si quid in cervice intendatur*, "if there is any
 " tension in the neck." Whence it would seem to be rather a sense of tightness, with an obtuse pain; and therefore soon after we read the following prognostic, *Cervicis dolores* (τραχηλῷ ὀδυνοδεῖα), *valde rubri oculi, sanguinis eruptiones significant*, "That pains in the neck,
 " with very red eyes, signify an eruption of blood ^f." But here it is to be observed, that the words in the text do not simply denote a pain, but seem to signify a slighter kind of pain. This ought therefore to be distinguished; because a very acute pain of the neck often presages worse consequences, namely a tetanus and convulsions: and of such a pain Hippocrates ^g seems to speak, when he says, *Cervicis dolor malum in omni febre, sed pessimum quibus insania speratur*; "A pain of
 " the neck is bad in every fever, but is worst in those
 " where there is reason to expect a delirium or ravings." So he likewise has observed ^h of convulsive pains in the neck; and in another place ⁱ he joins an inflammatory pain of the neck, with a convulsive constriction of the jaws, and convulsions together. Such a troublesome tightness of the neck is used to precede an eruption
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^d N^o 169. Charter. Tom. VIII. p. 861.

^e Ibid. p. 794.

^f Ibidem.

^g N^o 274. *ibid.* p. 867.

^h *Ibid.* p. 780.

^e *Prorrh.* lib. i.

^g *Ibidem*, p. 749. et *Coac.*

ⁱ In *Coac.* n^o 262.

of the menses in many women, as Hippocrates ^k has remarked; but we have already seen that a discharge by the menstrual flux is useful in these fevers. But this tightness in the neck will more certainly presage an hæmorrhage from the nose, if it is also accompanied with the other signs following, or with only some of them.

A heaviness of the temples, a darkness or mist before the sight, a labouring motion of the præcordia, without any sense of pain, &c.] For by all these signs we know that the impetus and quantity of the blood are derived towards the head; and therefore that we may hope an artery-breaking in the nose will excite an hæmorrhage, after the usual manner followed by nature in the cure of diseases. But it is indeed true, that at the same time there is reason to fear, lest the brain, being compressed by the quantity and impetus of the blood, should produce a delirium, convulsions, and other symptoms of the worst kind, unless prevented by a sudden hæmorrhage: but a faithful observation in diseases, throughout all ages, has taught us, that if all these signs, or several of them, concur together, we need not be much afraid of those bad consequences; but a certain hæmorrhage will ensue, that may remove them all. For the ancient physicians prudently esteemed all these symptoms as signs of a critical hæmorrhage at hand, if they appeared at a reasonable time of the disease, and did not arise from an increase of malignity in the distemper, but from an irritation of nature disposing to a crisis. For which reason these signs were alway suspected if they appeared in the beginning of the most acute diseases, before there were any signs of concoction. Hence, as we observed before from Hippocrates, in the comment to §. 594. the critical signs of a disease changing for the better ought not to appear immediately, that is, in the beginning of diseases: and Galen ^l observes, that critical signs ought to appear neither at the beginning nor increase, but only towards the height of the disease.

^k In Proorrh. lib. i. Charter. Tom. VIII. p. 796.

^l De Crisibus, lib. i. cap. 8. Charter. Tom. VIII. p. 387.

ease. Nor did they confide in such signs as appeared towards the beginning of the disease, even tho' they continued to the time of the crisis. Hence Galen, in the place before cited in the comment to §. 734. treating of involuntary tears, so carefully inculcates this admonition, when he enumerates the signs of a future hæmorrhage. For if the head should ache from a critical disturbance preceding, and the pain has not attended from the beginning of the disease, but is also accompanied with a pain in the neck, &c. if a sudden kind of difficulty arises in the respiration like an oppression on the thorax, &c. then he says, an hæmorrhage from the nose will ensue in a short time; and he admonishes physicians not to be terrified at the appearance, even though the patient should be delirious or seem convulsed. And Hippocrates, in the place before cited, only esteems involuntary tears as a sign of an hæmorrhage, when unattended with any fatal sign; for otherwise, he tells us, it presages death. Hence again, when he recollects all these signs, some of which point out a critical vomiting, he has the following words: *But in those who being afflicted with this kind of fever, not fatal, have a pain in the head, and a dulness of the sight, appearing like a darkness before the eyes, or who see lights, and feel a sort of contention like the heart-burn in the right or left hypochondrium, without great pain or inflammation; in such, a flux of blood is to be expected from the nose instead of vomiting, more especially in young people; but in those of about thirty or older, we are rather to expect a vomiting than an hæmorrhage from the nose*^m. The like signs he says, in another placeⁿ, predict an hæmorrhage from the nose, as well in ardent as other fevers. But he likewise ranks among these signs a redness of the face: *A flux of blood generally*

^m Quibus vero in hujusmodi febre (non lethali) caput dolentibus, proterebis ante oculos apparentibus visus hebetudo contingit, vel splendores observantur, et pro oris ventriculi morsu in hypochondrio sive ad dextra, sive ad sinistra, aliquid contenditur, neque cum dolore, neque cum inflammatione, illis pro vomitu sanguinem de naribus fluxurum expectandum est: magis autem juvenibus: trigessimum vero annum agentibus, vel et senioribus, minus, sed his vomitiones expectandæ. In *Prognost. Charter. Tom. VIII. p. 682.*

ⁿ *Epidem. 1. Charter. Tom. IX. p. 60.*

ally happens to those febrile patients who have a redness in the face, with a violent pain in the head, and throbbing of the arteries°. But Galen remarks, as we observed before, in the comment to §. 734. that an itching of the nose, denoting a greater tension of the blood-vessels, signifies not only a future, but even a present hæmorrhage at hand: for as then the patient rubs his nose the blood immediately starts forth, as it sometimes does by sneezing. But so great a confidence had Galen in these signs, that he was bold enough to predict to other physicians before the patient, that such an hæmorrhage was about to follow, and even from the right nostril; and that therefore blood-letting, which they had all advised, ought not to be admitted. For the patient being a young man, in the fifth day of the disease endeavoured to jump out of his bed to avoid a red serpent, which he thought he saw creeping towards him. There was a kind of obscure redness extended itself from the right side of the nose to the cheek, which appeared much more conspicuous than on the left; from whence Galen concluded, that blood was about to flow from the right nostril. In consequence of this, he secretly ordered a servant to provide a proper vessel for receiving the blood, and to conceal it under his clothes. Soon after, the patient feeling an itching in the nose, thrust up his fore-finger, and drawing it out bloody it was followed with a full stream, which the servant caught in the vessel that he had secretly provided. The physicians then present, who had laughed at this bold prognostic of Galen, upon seeing this, all walked off ashamed^p.

Besides these signs which have been already enumerated, there are still others found in Hippocrates denoting a future hæmorrhage in fevers, but always such as point out the impetus and quantity of the blood to be increased towards the head. Accordingly he refers hither a sudden anguish, with watchings^q; red-

I 3.

ness

° Febricitantibus, quibus quidem rubores in facie, et capitis dolor fortis, et venarum pulsus, his sanguinis fluxio plerumque contingit. *Coac. Prænot. n° 143. Charter. Tom. VIII. p. 859.*

^p Galen, de Prænot. ad Posthumum, cap. 13. *Charter. Tom. VIII. p. 851.*

^q In *Coac. Prænot. n° 113. ibid. p. 858.*

ness of the eyes^r; shaking of the head, and noise in the ears^s; a sudden disturbance of the mind with anguish^t, and deafness^u. But those signs which we have enumerated in the text are the most certain of all; the rest being not constantly present, but only at particular times.

But the reason of the most of the symptoms preceding an hæmorrhage may be understood, because they seem to arise from a greater fulness and tension of the blood-vessels distributed throughout the external and internal parts of the head. But the reason of that tension of the præcordia, which Hippocrates observes, without pain and inflammation, is not so evident: but in the mean time practical observations teach us, that there is a great consent betwixt the hypochondria and the nose. Thus Hippocrates remarks^w, that those who are otherwise in health, but subject to an hæmorrhage at the nose, have a swelling of the spleen. I have known many who being accustomed to a bleeding at the nose in the spring-time, have been able to foretel when it was at hand, from a pain about the region of the spleen, and sometimes also from a kind of palpitation perceived about the same place. Galen^x immediately suppressed a profuse hæmorrhage that came from the right nostril, by applying a large cupping-glass to the right hypochondrium; and this even when ligatures had been applied to the limbs, with other remedies, to no purpose. But if the blood should flow from the left nostril, he orders the cupping-glasses to be applied to the region of the spleen; or if the flux comes from both nostrils, he would have a cupping-glass fixed upon each hypochondrium^y. Accordingly Hippocrates^z condemns an eruption of blood from the side opposite to that which is disordered; as when blood flows from the right nostril, when there is a swelling of the spleen, &c. From all which it

^r Ibid. n^o 167. p. 861.

^s Ibid. n^o 168.

^t Ibid. n^o 185. p. 862.

^u Ibid. n^o 196. p. 863.

^w Prorrhetic. lib. ii. cap. 16. Charter.

Tom. VIII. p. 826.

^x De Prænotione, ad Posthumum, cap. 13.

ibid. p. 851.

^y Method. Med. lib. v. cap. 3. Charter. Tom. X. p. 107.

Et lib. de Curandi Ratione per venæsect. cap. 11. ibid. lib. i. p. 440.

^z Prorrhetic. lib. i. Charter. Tom. VIII. p. 789.

it is evident, how much this tension in the hypochondrium may be trusted to as a sign in this prognosis, even though the reason of all this is not evident from the hitherto known fabric of the body. It is sufficient for the practical physician to be assured of this from observation only, that he may from thence be able to presage what will happen in diseases. See what has been said in the comment to §. 701. concerning the influence or consent which one part of the body has upon another.

To these signs deserve to be added, that presaging of a future hæmorrhage from the nose, which is taken from the pulse only by the Spanish physician, whose observations have been collected by James Nihell, as we observed before in the comment to §. 587. where we treated of a Crisis. For by the *rebounding* pulse, as he calls it, (which seems to be that sort of pulse which the ancient physicians call *double*, when the artery in its dilatation strikes the finger twice, before it is followed by the systole or contraction; from thence) he knew he might presage a future hæmorrhage: but from the interval betwixt those resiliations of the pulse, he determined the time when the future hæmorrhage was about to happen; so that if he observed the pulse to be thus rebounding once in about thirty strokes, he expected an hæmorrhage from the nose after the space of four days; but after three days, if the pulse rebounded every sixteenth stroke; if every eighth, within two days; if oftener, within the space of twenty four hours: and sometimes this last interval was regularly divided, whence he was exactly able to determine the time of the future hæmorrhage; but sometimes the order of the pulse rebounding being disturbed, he could not so exactly ascertain the time. But he predicted, that the quantity of this evacuation would be large, if the second stroke of the rebounding pulse was stronger than the first; but small, if the contrary; if they both appeared equal in strength, he expected a moderate hæmorrhage. When the hæmorrhage began, the rebounding of the pulse lessened; and when the blood ceased to flow, it was perfectly imperceptible: unless, perhaps,

perhaps, such a crisis was to be repeated again in the same disease, as frequently happens; for then the rebounding pulse continued or returned again. But if this rebounding pulse was more perceptible in one hand than in the other, he generally observed that the blood flowed in the greatest quantity from the nostril on that side^a.

The importance of this observation, and the authority on which it is given us, are sufficient motives to induce every physician to observe this alteration of the pulse in fevers.

And this hæmorrhage is the best when it happens on the critical day.] In the comment to §. 587. treating of a crisis observable in fevers, it was proved by many arguments, that such crises do really happen in diseases; and afterwards we determined, from the writings of the ancient physicians, what ought properly to be called a crisis. But as our discourse there upon the crisis ran out to a great length, I deferred treating of critical days to the opportunity given us by the mentioning of them in this text. It will be therefore not improper here to add something upon this subject.

A careful observation in diseases taught the ancient physicians that crises happen in fevers; and, as they carefully remarked the changes which occurred almost every day, they saw that the most considerable alterations and discharges preceding a crisis, either accompany or follow for the most part this or that day of the disease; and as they found this to succeed after the same number of days in several patients, they thence called those days *critical* or *judicial*; and therefore such days they watched more carefully in other patients, that they might discover whether nature attempted any thing of the like kind at the same time. From hence seems to have arisen the distinction of days in diseases, some of them being denominated critical, and others not. But Galen^b has demonstrated, from the histories of diseases which he has described in Hippo-

^a Nihell of the pulse, p. 1, &c.

^b Lib. ii. de Diebus Decretor. cap. 5. Charter. Tom. VIII. p. 490.

Hippocrates's books of Epidemics, that it was not any reason that persuaded him, but use and experience which taught him, to make the difference betwixt those days in which critical alterations might happen or not. For it was Galen's^c belief, that the books of Epidemics were first written, and that from thence were deduced those general practical axioms which are found in the Prognostics and other parts of the works of Hippocrates. For although, says he^d, *omnibus diebus morborum crises quandoque accidunt, tamen non in omnibus diebus aequales numero observantur, neque pares fide*; "crises sometimes happen on all days in diseases, yet they are not observed to be equal in number on all days or equally to be relied on." Whence it appears, that the ancients with propriety called those days *critical* on which the greatest number and the most perfect crises were observed, without any subsequent returns. Hence the seventh day holds the principal place among those which are critical, because the crises happen the most frequently upon that day; inasmuch that Galen^e assures us, he could not number all the diseases which he had seen come to a crisis on that day: but, on the contrary, he observes, that he had never seen any disease turn on the twelfth or sixteenth day; and therefore those days are justly expunged from the number of such as are critical. Nor ought these critical days to be remarked, merely because on these there is so frequently a sudden change of the disease to health, or at least a great alteration for the better; but also because in the worst diseases death falls out upon the same days, or else a great alteration in the disease happens for the worse: hence Hippocrates tells us, *That fevers come to a crisis on the same days as to number, whereon people either expire or begin to recover*^f. Moreover, Galen observes, that in diseases of long continuance, which he confirms by several instances in the books of Epidemics, there are certain imperfect crises happen, which afterwards return

^c Lib. i. de diebus decretoriis, cap. 3. ibid. p. 454. ^d Ibid. cap. 2. p. 452. ^e Ibidem. ^f Febres diebus numero iislem judicantur. ex quibus homines tum servantur, tum etiam intercunt. In Prognost. Charter. Tom. VIII. p. 661.

return again when the disease has been silent for some days: and he there remarks, that it frequently happens that these returns begin upon some of the critical days; and after exceeding the number of some of the critical days, they again come to a crisis upon some other critical day^g. He gives us a very fair instance, confirming what was before said, in that patient who lay ill in the garden of Dealces^h. In this patient, the crisis happened on the eleventh day; for his senses returning, the fever went off with a sweat: but he remarks, that the urine being thin about the time of the crisis, denoted it to be imperfect; as those thin urines are always condemned by Hippocrates as bad in such diseases. Accordingly he continued free from the fever for two days; but it returned again on the fourteenth day, with a delirium or watchfulness. But on the seventeenth day, he had a sweat all over his body; which relieved the disorder, and brought him more to his senses: but the thirst and fever continued, and the urine was thin and not well coloured; and therefore a perfect crisis was not effected, even by this new endeavour of nature. On the twentieth day following, he again sweated, and was free from the fever; but still the urine continued thin, and therefore the disease did not seem to be yet subdued; though he was at length freed from it by a perfect crisis on the fortieth day, by a copious, white, phlegmatic discharge by stool, and a profuse sweat all over the body. But, as will presently appear from the enumeration of the days which Hippocrates calls *critical*, the remarkable changes in this disease, as also the returns, and at length the entire cure of it, always fell out on some of the days which are termed *critical*. The same may be demonstrated from many other instances in patients, whose histories are given us by Hippocrates; but this may suffice to prove, that the alterations of diseases, either for the better or the worse, observe a certain order in the days.

Nor is it any objection to this, that sometimes in the worst diseases the whole face of the symptoms is

^g Galen. de Diebus Decretor. lib. ii. cap. 4. Charter. Tom. VIII. p. 483.

^h Epidem. 3. ægrot. 3. Charter. Tom. IX. p. 222.

To disturbed, that one can hardly perceive any thing regular throughout the whole course; and nature, being overcome by the violence of the disease, sinks under it after a longer or shorter conflict. For in the commentaries to §. 587, in treating of a Crisis, we observed that crises do not happen in all diseases; which we confirmed by the testimonies of the ancient physicians. Thus, in the ardent fevers which spread epidemically, as described by Hippocrates, he remarks, *That much thin urines had nothing good or critical in them; and that those thus affected had no appearances of any other critical sign, no salutary efflux of blood from the nose, nor any other discharge which is usually critical; and that each of them died sooner or later, according as their strength would hold out, but for the most part about the critical times*ⁱ. For as in these diseases there were no crises, neither could there be any critical days observed: but in other diseases which incline to a better or worse condition, to death or health, by a bad or good, perfect or imperfect crisis, an observation of the critical days is of the greatest moment.

But we have the following enumeration of critical days in Hippocrates. For after having said, that the lightest fevers, which appear with the signs of the greatest security, terminate on the fourth day, or before; but that malignant fevers, and such as invade with the worst signs, kill about the same time, or before; he has the following passage: *In this manner therefore terminates the first insult of these diseases; the second is extended to the seventh day, but the third to the eleventh, the fourth to the fourteenth, the fifth to the seventeenth, the sixth to the twentieth, &c.* But afterwards, according to the addition of these in the same proportion, *the first circuit is that of thirty-four days, the second is that of forty days, and the third is sixty days*^k. But in this aphorism he says, *The fourth day is an index to the*

ⁱ Urinæ multae tennes, nihil indicatorii, nihil boni, habebant; neque quidquam aliud decretorium sic affectis apparebat, neque sanguis ex naribus probe effluebat, neque abscessus alius ex consuetis fiebat judicatorius, moriebaturque unusquisque, uti fors ferebat, errabunde, plerumque circa iudicationes. *Ibid.* p. 271, &c.

^k Primus itaque earum insultus sic definit, secundus ad septimum perducitur,

*the seventh: The eighth day is the beginning of the second week; and so the eleventh day is also to be considered, inasmuch as that is the fourth of the second week: But again, the seventeenth day is to be remarked; for that is the fourth from the fourteenth, and the seventh from the eleventh*¹. What those days are which he calls indicating, we shall explain hereafter; but it is sufficient here to observe, that it evidently appears from these two passages cited from Hippocrates, that he ascribes a great deal to the fourth and seventh day of each week, for which reason he would have them remarked.

But in his *Epidemics*^m he ranks critical days in another order: for he observes, that diseases which have their fits of returning upon equal days, come to a crisis upon even days; and, in like manner, that those which invade upon unequal days, have their crisis upon uneven days. Hence he distinguishes critical days into two kinds: *But the first of the critical days among the class of those which are even, is the fourth, sixth, eighth, tenth, fourteenth, twenty-eighth, thirtieth, forty-eighth, sixtieth, and hundredth. But in the course or returns of the unequal days, which are critical, the first is the third, fifth, seventh, ninth, eleventh, seventeenth, twenty-first, twenty-seventh, and thirty-first.* But Galenⁿ, in his commentaries to this place, observes, that Hippocrates here describes the critical days in the same order in which they follow each other; but in his *Prognostics* he accurately runs through the periods, which are made four in number. But in another place Galen

ducitur, tertius autem ad undecimum, quartus ad decimum quartum, quintus ad decimum septimum sextus ad vigesimum, &c. Postea vero juxta eandem additionem eadem ratione primus circuitus est triginta quatuor dierum, secundus quadraginta dierum, tertius sexaginta dierum. *Prognost. Charter. Tom. VIII. p. 664, &c.*

¹ Septenariorum index quartus. Secundæ septimanæ octavus principium. Undecimus quoque spectandus dies est, is enim secundæ septimanæ quartus est. Rursus vero spectandus decimus septimus, is enim a decimo quarto quartus est, et ab undecimo septimus. *Aphor. 24. sect. ii. Charter. Tom. IX. p. 67.*

^m Circuituum autem diebus paribus judicantium primus decretorius est quartus, sextus, octavus, decimus, decimus quartus, vigesimus octavus, trigessimus, quadragesimus octavus, sexagesimus, octogessimus, et centesimus. Circuituum vero diebus imparibus judicantium primus est tertius, quintus, septimus, nonus, undecimus, decimus septimus, primus et vigesimus, vigesimus septimus, et trigessimus primus. *Epidem. lib. i. Charter. Tom. IX. p. 95.* ⁿ Ibid. p. 96.

ren^o observes, that after he had examined the two passages before cited, he again reckons up in his epidemics all those days in which crises have been sometimes observed, only with design to assist the memory; and here again he remarks, that Hippocrates wrote his books of Epidemics before his Prognostics and Aphorisms; namely, that the latter might supply the memory with such things as had been before observed. And hence he concludes, that Hippocrates only remarks in his Prognostics and Aphorisms, such days as were of the greatest consequence, and were most perfect with respect to their nature, and consequently were of no small use to point out a foreknowledge of the future height and crisis of the disease. Hence appears the reason why Hippocrates seems to have cut short in his Prognostics and Aphorisms many of those numerous days which he reckons up in the first book of his Epidemics^p.

Those days therefore which are continued on in the same course by fours or sevens, are more especially to be termed *critical* beyond the rest; and excel all others in their dignity, efficacy, and certainty; and therefore they properly merit the name of *critical*. But the other days on which crises happen different from the former, are by Galen^q called *coincidental*; and are therefore esteemed an inferior class of critical days, on which crises indeed sometimes happen, but more rarely, and with less safety. But he seems to have been of opinion, that *critical days*, properly so called, were those on which the regular course of diseases, and the action of nature (that is to say, all that is yet remaining of health in the patient operating upon the disease and morbid matter) produce those considerable and often very sudden changes which happen at certain stated times. But by the term *incidental* days, he calls those on which the like disturbances are excited sooner or later than the stated times, either from an irritation of nature by a new attack of the disease; or from some

^o Lib. ii. de Diebus Decretoriis, cap. 6. Charter. Tom. VIII. p. 484.

^p Lib. i. de Diebus Decretor. cap. 3. *ibid.* p. 454.

^q *Ibid.* lib. iii. cap. 8. p. 500.

error in the physician, patient, or attendants: therefore such days were not in their own nature critical, but something else was required to make them so; as for example, a violent return of the disease, an error in diet, &c. Whence the reason of a distinction of days into *critical* properly so called, and *incidental*, is sufficiently apparent. Thus when the exacerbations happen on the third or fifth day, they are equally critical with the fourth^r; for no other reason, than because nature, being often irritated by the violent accession, endeavours to expel from the body the matter of the disease by some critical evacuation before its due time. For the same reason also the sixth day, when the fits of increase fall out upon even days, is sometimes critical. Thus the virgin that lay ill of an ardent fever at Larissa, had a critical termination of it by a profuse hæmorrhage from the nose, with a copious and hot sweat throughout the whole body^s. But Hippocrates observes, that the exacerbations attended upon even days; and adds, that this fever did not return, but came to a perfect and good crisis upon such a day, which he remarks as something extraordinary and unusual. For those crises which happen on the sixth day are always suspected by Galen^t: who therefore calls the seventh a *good* critical day; but the sixth a *bad* critical day, as it rarely brings a good and perfect crisis, but almost constantly is attended with great danger and disturbance. See what has been said before upon this subject, in the comment to §. 587.

This is the reason why there are more critical incidental days in the first septenary, within which space those fevers terminate which are called *per-acute*, namely, the third, fifth, and sixth; because in these very swift diseases there is generally observed such violent invasions or accessions, that the crisis is frequently accelerated, but with danger; whereas it ought to happen regularly on the fourth or seventh day, which are good and truly critical^u. But in the

second

^r Ibid.

^s Epidemicor. 3. ægrot. 12. Charter. Tom. IX. p. 306.

^t Lib. i. de Crisibus, cap. 5. Charter. Tom. VIII. p. 457. et cap. 4.

^u Ibid. 456.

^u Ibid. lib. iii. cap. 8. Charter. Tom. VIII. p. 502.

Second septenary the ninth is esteemed almost the only incidental critical day, namely, as Galen says ^w, *Qui inter dies criticos septimum et undecimum medius, vel non factum in septimo die iudicium, vel undecimo futurum sibi vindicat, rarius quidem septimi, sæpius vero undecimi crisis assumit*: “That which intervenes betwixt the seventh and eleventh critical days; or when the crisis not happening on the seventh day, claims to itself the privilege of appearing on the eleventh, seldom on the seventh; but oftener the crisis happens on the eleventh day.” For the diseases which run out to a greater length than the first seven days, have their course less impetuous, and therefore nature is not so easily irritated as to attempt a crisis before the due time. Hence also the reason is evident, why after the fourteenth day the critical incidental days are of little or no consequence, and the crises happen only upon those days which are truly critical.

It is therefore evident, that the best hæmorrhage is that which happens on a critical day, namely, the fourth, seventh, eleventh, fourteenth, seventeenth, twentieth, &c. which are legitimate critical days: but those hæmorrhages which happen upon some incidental critical day, as the third, fifth, sixth, or ninth, are less salutary; but those happening on other days are altogether to be suspected. The same will also hold true of the other critical evacuations.

It may perhaps be objected, that an evacuation of the morbid matter is always salutary, at whatever time of the disease it may happen, and that therefore this tedious watching of stated times is more troublesome than useful. No one can doubt but it must be always serviceable for that to be expelled from the body, which being left in it would be injurious, provided the healthy good humours are not discharged therewith, but there is an entire evacuation only of such as are morbid; or if, while this is performing, there are no such great disturbances in the body as might give room for other worse diseases to be feared. But it appeared, in the the general history of fevers, that the material

cause of the disorder is subdued by the fever itself, so as to be rendered moveable, and disposed for a discharge; provided only that the fever be so moderated or governed, as to be neither too sluggish, nor yet mischievous by its too great violence: (see §. 609.) But in order to this change of the morbid matter, which is called its *concoction*, a determinate space of time is required, varying according to the greater or less violence of the fever, and the more or less obstinacy of the matter to be subdued. Now the ancient physicians, by a careful observation of diseases, found out these times, in which the morbid matter being subdued by the fever itself, and rendered moveable, was afterwards expelled from the body; and those times they called *critical days*. But those changes in diseases which happened at other times, they justly suspected: because they frequently proceeded, not from nature prevailing over the disease; but from the violence of the fever itself, increased by some error committed either by the patient, physician, or servants attending. For to make an exact separation of the morbid from the healthy humours, is the work of nature only. When a violent and irresolvable phlegmon occupies some part of the body, it is not in the power of the most skilful anatomist so to separate the obstructed ends of the vessels, as to offer no injury to the other sound parts: yet nature, by a mild suppuration, in a determinate space of time, performs this separation of the morbid from the healthy parts. Now the ancient physicians had remarked, (as we said before upon another occasion, at §. 387, 593, 730.) that the putrefaction of the humours made in the vessels by fevers, was like that which happened to the humours in inflammations and abscesses, where nature overpowering the disorder forms laudable matter; but in the fluid of the arteries and veins, she forms that which answers to a certain quantity of purulent matter in the urine. But, lest they should give offence by the term *putrefaction*, they observe, that this is not simply a putrefaction, but has in it something of a *concoction*. Since therefore they observed a determinate
space

space of time necessary for converting a phlegmon into an abscess, before matter could be formed; so likewise the same thing was observed to be true in fevers. But now, as it is improper to open an inflamed part before the matter is completely formed; so likewise evacuations made in fevers, before nature has subdued and separated the morbid from the healthy humours, can hardly be of any service; because they remove only part of the morbid matter, whence a return may be expected from what remains; or, because with great violence they evacuate the healthy as well as the diseased humours from the body, while what is left behind continues equally disordered from the foul matter which is not yet entirely separated.

Of how little use it is to attempt a separation of the morbid matter in diseases before the due time, appears evidently from the small-pox: which disease I therefore chuse for an example, because, as far as I can find, the ancient physicians have not described it; and yet the critical days of the ancients are in no fever more regularly observed than in this. The variolous contagion received into a healthy person, kindles a fever; by which fever the matter of the disease is deposited by a critical translocation towards the surface of the body. If this happens on the fourth day of the disease, the fever abates; and all the symptoms not only diminish, but frequently disappear, as we learn from daily observation. But when the eruptions appear before that time, either from the too great violence of the fever, the perverse use of a hot regimen, or the use of heating sudorifics, with the weight of bed-clothes, &c. they are thicker, of a worse kind, and the symptoms do not much abate upon the appearance of the eruptions; insomuch that Sydenham was already afraid of the small-pox being worse, as they appeared sooner before the fourth day. But if the eruptions appear later, either from a weakness of the patient's strength, or from the impetuosity of the fever so disturbing the whole œconomy that a critical separation cannot be made of the morbid matter, the symptoms are observed to be the most malignant

and irregular, and the distemper almost constantly proves fatal.

From all this, I believe, it is evident, that certain times are to be observed in fevers, in which the matter of the disease being subdued, changed, and rendered moveable, is afterwards expelled from the body, or deposited upon some other part. It is also equally evident, that a careful observation of these times is of the greatest use towards the cure of diseases, lest we should do mischief by unseasonable assistance from art; as when we endeavour to expel that which is not yet prepared to be evacuated, or else hinder the evacuation of such humours as being subdued and concocted endeavour to escape by some convenient outlet. From thence also we learn, that those evacuations or considerable alterations ought not to be trusted which happen at other times of the disease, because they are seldom safe, or generally alter the disease for the worse, or at least occasion a return of it afterwards.

But that these critical days may be distinguished in diseases, it is necessary to know at what time we may begin to compute the invasion of the distemper; but concerning this we treated before in the comment to §. 590. It must also be observed, that by a day we understand the space of twenty-four hours; commonly distinguished into day and night, according to Galen^x.

But since Hippocrates has divided the insults of diseases, so that the most acute extend to the fourth day, those of the second class to the seventh day, of the third to the eleventh, &c. therefore the middle day of each week, (namely, the fourth), and the last or seventh, Hippocrates would have us more especially observe; as is evident from the places before cited from his Aphorisms^y and Prognostics. But in the meantime he does not extend the sixth insult of acute fevers to the twenty-first, but only to the twentieth day; and joins the third week with the second, so that the last day

^x De Crisibus, lib. i. cap. 16. Charter. Tom. VIII. p. 400.

^y Aphor. 24. sect. ii. Charter. Tom. IX. p. 67. In Prognosticis. Charter. Tom. VIII. p. 664.

day of the second week may be esteemed the first of the third week; but he separates the first and second week from each other, by saying, that the eighth day is the beginning of the second week; and hence he calls the eleventh day the fourth of the second week; but the seventeenth day he calls the fourth from the fourteenth, and considers it as the seventh from the eleventh. From whence it plainly appears, that Hippocrates joins the second and third week together; and that the space of three weeks in fevers according to his computation contains only twenty days. This is also confirmed from what follows soon after the place before cited, where he says, *But after these, in the same proportion, agreeable to a like addition, the first course is thirty-four days, the second forty days, the third sixty days*². Where it manifestly appears, that diseases running out to a great length have only every twentieth day critical, namely, the space of three weeks; whence, as we observed before, there are instances in his Epidemics of a fever coming to a crisis on the eightieth, hundredth, or hundred and twentieth day of the disease. But although Hippocrates only, by an observation and conjunction of these weeks together, with a faithful observation in the practice of physic, discovered these truths, though he did not rightly understand the reason of what he observed; yet he seems to have acknowledged this difficulty, when, after enumerating the insults of diseases extending to the twentieth day, he immediately subjoins, *Yet we are not able exactly to estimate any of these accounts from whole days, any more than years or months are used to be reckoned up by whole days*³. But Galen^b enlarges this account, endeavouring to demonstrate it from the course of the moon, that three weeks do not contain twenty-one whole

² Post hæc vero eadem ratione, juxta eandem additionem, primus circuitus est quatuor et triginta dierum, secundus quadraginta dierum, tertius sexaginta dierum. *Ibidem. Charter. Tom. VIII. p. 665.*

³ Neque vero horum quidquam integris diebus exacte numerari potest; neque enim annus, neque menses, integris diebus numerari solent. *Ibid. p. 664.*

^b In lib. iii. de Diebus Decretoriis, pluribus in locis, imprimis cap. 9. *Charter. Tom. VIII. p. 503.*

whole days, but that there is almost half a day wanting; and from thence he would infer, that the crises must rather happen on the twentieth than on the twenty-first day. But, as we have frequently observed before, from what Hippocrates had collected in his Epidemics he deduced his general axioms, more especially those in his Prognostics and Aphorisms: and as in the histories of those patients given us in the first and third books of his Epidemics, which are commonly esteemed the most genuine, there is not one instance of a crisis happening to fall out on the twenty-first day; but even, if I rightly remember, he does not so much as mention any thing which occurred in a patient on that day; whereas, on the contrary, he every where remarks what happened to those patients that could be observed on the critical days; the reason is evident, why Hippocrates exempts the twenty-first day from the number of those that are critical, and makes the twentieth day critical in its stead; namely, because on that day he had seen many fevers come to a crisis, either good, bad, or imperfect. Thus the wife of Philinus^c expired on the twentieth day. And in Chærius, there was an imperfect crisis on the seventh day, on the ninth day there was a return, on the fourteenth there was an acute fever, on the seventeenth there was a fresh inclination to a crisis, and at length on the twentieth day there was an imperfect crisis^d. Hermocrates on the twentieth day had an imperfect crisis, on the twenty fourth he had a return, and on the twenty-seventh he expired^e. So also in the patient who lay ill in the garden of Dealces, there was an imperfect crisis made on the twentieth day; but a perfect crisis did not happen till the fortieth^f. But since Hippocrates observed, that the crisis happened oftener on the fourth day of the first and second week, namely, on the fourth and eleventh day of the disease, therefore he esteemed those days as of the most importance in diseases; and as he saw the like frequently

^c Epidem. i. ægrot. 4. Charter. Tom. IX. p. 104.
 ægrot. 5. *ibid.* p. 233, 234. ^e Ægrot. 2. p. 210, 219.
 ægrot. 3. p. 222, — 228.

^d Epidem. 3.
^f *Ibid.*

quently happen on the seventeenth day, he likewise made that for the fourth day of the third week; and then the twentieth was the last of the third week, which so frequently proved critical likewise; and therefore the reason is evident, why he joins the second and third week together in such a manner, that the fourteenth day is the last of the second week, and the first of the third. But that the seventeenth day was oftener critical than the rest, appears likewise from the history of the patients. Thus Herophon, who had an imperfect crisis on the ninth day, had a return of his fever the fourteenth; and then again on the seventeenth he had a crisis, by which he recovered beyond expectation^g. But the woman who had a very difficult delivery of twins, died phrenitic on the seventeenth day^h. In another place, he also takes notice of many more ardent fevers, which came to a perfect crisis on the same dayⁱ; and in the epidemical constitution which he describes, he remarks, that those who had a crisis on the seventeenth day had never any returns; whence the dignity of that day in the order of those that are critical is sufficiently apparent.

But he fairly confirms this order of the critical days, by observing, that, after the twentieth, the twenty-fourth, twenty-seventh, thirty-fourth, and fortieth, were also critical; then the sixtieth, eightieth, hundredth, and the hundred and twentieth day; and thus there is manifestly a return of the same order of the weeks: which is likewise evident in the histories of the patients given us in the first and third books of his Epidemics, which I could here likewise enumerate, but for the sake of brevity I rather chuse to refer to them; for the truth of what is here affirmed will appear to any one who reads those books.

Yet it must not be denied, that Hippocrates in his aphorisms makes the twenty-first day critical; for his words are these: *Sweats in febrile patients are good if they begin upon the third, fifth, seventh, ninth, eleventh, fourteenth, seventeenth, twenty-first, twenty-seventh, thirty-*

^g Epidem. 1. ægrot. 1. p. 103. ibid. p. 308.

ⁱ Epidem. 1. p. 43, 76

^h Epidem. 3. ægrot. 14. ibidem.

thirty-first, or thirty-fourth days; for these sweats terminate the disease. But the sweats which happen not on these days denote length of the disease, difficulty, and returns of it^k. Here it is to be also remarked, that he makes no mention of the fourth day. But Galen^l, in his commentaries to this aphorism, believes, that this is omitted, because the diseases whose exacerbations happen upon uneven days come sooner to a crisis; and he testifies upon his own knowledge and experience, that diseases seldom terminate on the fourth day by sweats. As for the twenty-first day, it is not without reason that the passage is suspected to be corrupted, and that it ought rather to be read the twentieth; because there is no mention of the twenty-first day in the histories of the patients given us in his books of Epidemics; as also because Galen in his commentaries to this aphorism makes no mention of this difficulty; though, in his books upon critical days, he makes the twentieth and not the twenty-first to be critical, and gives us the reason, as we before observed, why the fourth day is not here taken in. Unless perhaps any one rather chuses to think, that this aphorism corresponds to the text before-mentioned in his Epidemics^m, where he reckons up the order of the returns of critical days to be upon uneven numbers; for there indeed these days are included. But then it appears, that the enumeration of the critical days is most preferable which he gives us in his Prognostics; and, from what has been already said, it is evident enough what we ought to think concerning the twentieth day.

Hence it appears, what judgment we ought to form concerning the following aphorism; namely, ⁿ *That fevers, unless they leave the patient upon uneven days, usually*

^k Sudores, si febricitantibus ceperint, boni tertio die, et quinto et septimo, et nono et undecimo, et decimo quarto, et decimo septimo, et vigesimo primo, et vigesimo septimo, et trigesimo primo, et trigesimo quarto. Illi enim sudores morbos judicant. Qui vero non ita fiunt, laborem significant, morbi longitudinem et reversionem. *Aphor.* 36. *sect.* 4. *Charter.* Tom. IX. p. 158.

^l Ibid. p. 159.

^m *Epidem.* lib. i. *Charter.* Tom. IX. p. 96.

ⁿ Febricitantem nisi diebus imparibus febris demiserit, reverti consuevit. N^o 61. *sect.* 4. *Charter.* Tom. IX. p. 173.

usually return. For in the first week of these fevers, which have their exacerbations upon uneven days, this passage may hold true; but it cannot be taken for an universal rule; since it appears from the Epidemics and Prognostics of Hippocrates, that crises happen without any return on the fourth day and on the fourteenth, on the twentieth and twenty-fourth, on the thirty fourth and fortieth, &c. Hence Galen doubts whether this passage is genuine, and rather chuses to read critical for uneven days, as we find it in the Coan Prognostics^o. Celsus, upon reading these passages of Hippocrates where he ascribes the power of a crisis to uneven days only, and again finding in another place that Hippocrates makes even days as critical, was induced to believe, That *whatever deference we ought to pay with respect to numbers, there was no reason for them to be found in that author*^p: And he was of opinion, the ancient physicians were deceived with the Pythagorean numbers; and this because they shift without any probable reason from the eleventh, not to the thirteenth, but to the fourteenth day, although they at first assigned uneven days only to be of any importance in the crisis. But Celsus seems to have been unhappy in his interpretation of the sentiments of Hippocrates in this place, which is not to be well understood but by comparing it with other passages: but that this is true of Celsus appears evidently from his saying that Hippocrates makes every fourth day the most efficacious; but that he forgets this in what he before proposed, since the eleventh day is not the fourth, but the fifth, from the seventh. But Hippocrates^q expressly observes, as we said before, that the eighth day is the beginning of the second week, and consequently that the eleventh day is the fourth of the second week. Hippocrates therefore did not derive this distinction of the critical days from any property in numbers, but from faithful observations in diseases; as will plainly appear to every

^o No 82. Charter. Tom. VIII. p. 856. & no 147. *ibid.* 860.

^p Quicunque ratione ad numerum respexerimus, nihil rationis, sub quo quidem autore, reperiri. *Celsi lib. iii. cap. p. 121, 122.*

^q Aphor. 24. sect. ii. Charter. Tom. IX. p. 67.

very one who attentively reads the writings of the ancient physicians. But since the observation of crises and critical days requires the most diligent and careful attention of the mind to every individual circumstance, it will not seem strange to any that the generality of physicians should have neglected them; or that even some should maliciously despise the ancient physicians, and those who follow in their footsteps, (as we observed before at §. 587, where we treated of a Crisis). But to these may be justly applied the words of Celsus, who in treating of the time convenient for giving nourishment to patients, to determine which he judged great diligence to be necessary, has the following words: *But from hence we may understand, that many patients cannot be attended by one physician; and that the physician, if he is an artist or well-skilled, is the most useful who does not much absent himself from the patient. But they who consult their profit, because that brings a person more into popular esteem, freely embrace such precepts or rules in practice as will not give them much pains or trouble*^s.

But among the critical days which take in the middle of the week, or end it, as we said before, this difference is observed, that the crises happen not always on such days as are even in number, but on some more frequently than on others. Thus the seventh day, though it is the second in order among those which are critical, since the fourth is placed before it, is nevertheless esteemed the first and most important by Galen^t; because the greatest number of crises happen upon that day, and those perfectly, with a manifest evacuation or deposition, and generally with a salutary event. Sometimes indeed, though rarely, the patient expires on that day; or else the disease then manifestly changes for the worse, and he expires on some following critical day, as for example, upon the eleventh.

^s Ex his autem intelligi potest, ab uno Medico multos non posse curari: eumque si artifex est, idoneum esse, qui non multum ab ægro recedit. Sed, qui quæstui serviunt, quoniam is major ex populo est, libenter amplectuntur ea præcepta, quæ sedulitatem non exigunt. *Cels. lib. iii. cap. 4. p. 120.*

^t De Diebus Decret. lib. i. cap. 4. Charter. Tom. VIII. p. 455.

seventh. But Galen^u assures us, he has so often seen crises upon this day, that he cannot number them: but the fourth day is critical only in the most acute diseases; but in other diseases it rather performs the office of an indicating day, concerning which we shall presently treat. The next day to the seventh is the fourteenth, upon which the crises most frequently happen: after this follow the eleventh and twentieth, and then the seventeenth^w. But this distinction is not so certain with respect to critical incidental days, concerning which we treated before; namely, the third, fifth, sixth, and ninth; since they are not critical in themselves, but rather become so accidentally from some fit of increase in the disease, or from some error committed in the diet, &c. But the sixth day, as we before observed, is more especially infamous beyond the rest for a crisis to happen upon, and for the danger of the disease and the fear of its relapse.

But it is moreover to be observed, that epidemical diseases more frequently keep to a constant order in their crises upon some certain day. Thus Galen^x remarks, from the Epidemics of Hippocrates, that in one constitution almost all the patients had a perfect crisis on the seventeenth day, after a sort of imperfect crisis had preceded upon some day before, and the disease again returned. Hence also Galen concludes, that the seventeenth day in diseases is not one of those which are incidentally critical, but one of the most powerful and principal of the critical days. So likewise Sydenham observes^y, that the continual epidemic fevers which he describes terminated critically about the fourteenth day. Therefore in this respect we ought always to have a regard to the genius or nature of the epidemical disease, in order to distinguish at what time, and by what passage, nature will endeavour to terminate the disease.

Now according as the violence of the disease is more swift or slow, so the crises will happen sooner or later, and the critical days will be more or less distant from

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^u Ibid. cap. 2. p. 452. ^w Ibid. cap. 5. p. 458. ^x Ibid. lib. ii. p. 3. p. 477. ^y Sect. i. cap. 4. p. 70.

each other. Thus in those fevers which do not exceed the space of three weeks, the quaternary or septenary days are judicial or critical: and besides these in the two first weeks, there are many more incidentally critical days, as the third, fifth, sixth, &c. which we before observed. But if an acute disease extends itself beyond three weeks, then the quaternary days no more take place as critical, but only the septenary days are so; though the efficacy of these last is likewise abolished after the fortieth day: for then every twentieth day only is esteemed critical by Hippocrates, namely, the sixtieth, eightieth, hundredth, and hundred and twentieth; as is evident from his Prognostics², and the histories of patients which he gives us in his Epidemics. For if the morbid matter cannot be subdued, dissolved, and rendered moveable, so as to be disposed for evacuation, within that course of acute diseases which usually terminates in twenty days, nature then employs a longer space of time to perform this; and, generally the disease being often silent for several days, and often making returns, at length she triumphs over the rebellious matter of the disease, by a perfect crisis upon some remote critical day: or frequently the stubborn matter of the disease is gradually and slowly subdued, and almost insensibly expelled by various passages from the body, without that disturbance which is frequent in the first circuit, which terminates in twenty days; or else, being collected in some part of the body, it forms an abscess. Hence Galen observes, *That great disturbances happen in diseases until the fourteenth day. In the next place to these follow the disturbances which are less, in diseases extending to the twentieth day. But in all those which succeed after this to the fortieth day, the fevers gradually abate. So that those which come after the fortieth, are altogether languid; terminating diseases rather by concoction and deposition or abscess, than by making excretions or evacuations. But sometimes, even in these, there are critical evacuations, though rarely, and without any great struggle, the crisis frequently taking up several days, more especially when it terminates*

terminates by way of abscess^a. For this is to be observed (as we said before in the comment to §. 587. where we treated of a Crisis) that the crises of diseases of long continuance do not only abate the violence of the critical disturbance, but they are also several days in being perfected. Hence Hippocrates, who absolutely points out the day on which there will be a change in the patient in that period which is limited to fourteen days, does nevertheless remark, that in more lingering fevers a crisis has been made, not upon any certain day, but *about* such a day; from whence also it is evident, how exactly and carefully he has delivered to us his observations of diseases. Thus, in the first epidemical constitution which he describes, he tells us, *But such of these fevers as were of the shortest duration, came to a crisis about the twentieth day; but the majority of them about the fortieth, and many of them about the eightieth*^b. Thus also Clazomenius^c is said to have recovered, not upon the fortieth day, but near or about it. And Heropytus^d, after suffering various maladies through the long course of the disease, was greatly disturbed with many bilious stools about the hundredth day, which continued for no small time; and at length he was afflicted with a dysentery and griping, till on the hundredth day there was a perfect crisis or change for the better.

But although acute diseases after imperfect crises sometimes run out to so great a length, and at the same time the violence of those diseases seems to be abated; yet it must not be thought in such cases that

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the

^a Usque ad quartum decimum quidem magnæ sunt perturbationes in morbis. Proximo loco succedunt, quæ usque ad vigesimum habentur. Omnes vero, quæ post hunc ad quadragesimum succedunt, paulatim emittunt vehementiam. Adeo ut, qui post quadragesimum sunt, omnes prorsus langueant, concoctionibus potius, et abscessibus, quam excretionibus morborum solutiones facientes. Accidunt in his quoque per excretiones interdum judicia, sed raro, neque magnum certamen habent, et frequenter pluribus diebus judicia complentur, maxime cum in abscessum vertuntur. *Galen. de Diebus Decret. lib. i. cap. 10. ibid. p. 466.*

^b Judicabantur autem inter hos, quibus brevissimi erant morbi, circa vigesimum diem; plurimis vero circa quadragesimum; multis circa octogesimum. *Epid. i. Charter. Tom. IX. p. 30.*

^c *Ibid. ægrot. 10. p. 112.*

^d *Lib. iii. Epidem. ægrot. 9. ibid.*

the length of the disease only is troublesome but without danger; and that therefore there is hardly any occasion to attend to the remote critical days, since those diseases gradually wear out: for Hippocrates has observed, that even such diseases have been sometimes mortal, and that the patient has expired upon some remote critical day. Thus the woman who was taken with an acute fever after her lying-in, perished on the 'eightieth day^e. Another patient^f, though free from the fever on the fortieth day, yet had a bad urine, was restless, had an aversion to food, and at length perished afterwards on the hundred and twentieth day: but Hippocrates remarks that he had eat of many and improper dishes; in order to caution physicians not to confide in such imperfect crises; and to inform them, that though diseases run out to a great length, yet great care is necessary to be used in the diet and regimen.

But those critical days on which the crises most frequently happened in diseases, the ancient physicians have also termed *indicating* days, inasmuch as they point out what may be expected the next critical day, if the crisis does not happen upon them. For we have already seen, that nature requires a determinate space of time in fevers to subdue the morbid matter, to dissolve it, render it moveable, and dispose it for evacuation. But while nature is employed in this work, certain changes happen, more especially in the urine, by which we discover that the febrile matter is disposed to be less offensive. These changes observed, are called the *signs of concoction*; and are constantly of so good account in diseases, that Galen always and absolutely esteems them for good signs, upon whatever day of the disease they may occur: whereas the signs of the crisis itself are sometimes to be suspected, as we have seen a little before hinted to us by Hippocrates, because they do not immediately appear to make an alteration for the better; namely, when they happen before there is any probable reason to hope that the febrile matter is subdued and rendered moveable. Hence Galen tells

us,

^e Epidem. 3. ægot. 2. ibid. p. 294.^f Ibid. ægot. 1. p. 291.

s, That the signs of concoction appear never in vain, nor that it is often convenient to repeat what is most useful: but critical signs may appear for the worse; nor ought these signs to appear either in the beginning or increase, but only about the height of the disease^g. And from thence he concludes, that the signs of concoction are always certain; but that the signs of a crisis are uncertain, according as they appear either alone or mixed with others, or at different times of the disease^h. But what concoction is, and what the signs of it are, has been said before in the comment to §. 587. where are treated particularly upon this subject.

But it seems to have been the opinion of the ancient physicians, that a careful attendance ought always to be given to critical days, not only because the crises of diseases usually happen upon them, but also because from the alterations of diseases observed on those days we may be able to foresee what will happen for the future on the following critical days. For this reason Hippocrates, in an aphorism lately cited, tells us, "That the fourth day is an index to the seventh: That the eighth day is the beginning of the second week; and so the eleventh is also to be considered, because that is the fourth day of the second week," &c. From which place it is manifest, that these days are called *indicating*, with respect to future days in their own nature *critical*. Hence also, after having observed that it is difficult to know in the beginning of diseases which of them will run out to the greatest length, because they begin like other diseases, he then adds the following passage: *But the physician must attend to all the appearances from the very first day of the disease, and consider the sum of his observations upon every fourth day; by which means he will not be unacquainted with the course that the disease is about to take, &c. Therefore from the appearances which thus happen, as also from the*

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time,

^g Coctionis signa (sæpe enim, quæ utilissima sunt, repetere convenit) nunquam male apparent, decretoria vero est ubi male (apparent); neque enim in augmentis, neque in principiis, sed in statibus illa apparere convenit. *De Crisib. lib. i. cap. 8. Charter. Tom. VIII. p. 387. et in libi pluribus locis.*

^h Ibid. cap. 14. p. 393.

time, and every other accident that follows after, the physician is to form his judgment in diseases tending to a crisisⁱ. From all which it is evident, that every one of the critical days bears a relation as an indicating day, with respect to the critical day next following: thus the fourth day may be an index to the seventh, the seventh to the eleventh, &c. And as after the twentieth day, partly from the less violence of the disease, and partly from the more stubborn nature of the morbid matter, the crisis does not fall within the limits of quaternary days, but generally such days as are septenary only; so the same thing takes place with respect to these days as indicators for the rest. Hence the reason is evident why Hippocrates says, *When a crisis happens on the seventh day, there is a small red cloud in the urine upon the fourth day, and other things are proportionable to this appearance*^k. But it is at least a sign of concoction begun, if the urine begins to have the like appearances with that of healthy people; and therefore a crisis may be expected upon the day next following. But where there are no signs of concoction, but rather signs of crudity are observed on the fourth day, and accompanied with malignant symptoms at the same time; then it may be feared that a bad crisis or death will happen on the seventh day: unless the disease is very acute, and subject to fits of increase upon even days; for then sometimes death happens on the sixth day, after being indicated by the fourth, as Galen^l observes. Otherwise he affirms, that the fourth day is in its own nature an index to the seventh, and that he knew this for certain from an accurate observation of acute diseases. Now, according as the disease moves swifter or slower; so the indicating

ⁱ Verum a primo die animadvertendum est; et ad quæmque quaternarium additum considerandum, nec latebit, quo se versurus sit morbus, &c. His igitur sic contingentibus, conjectare oportet tum ex tempore, tum ex unaquaque additione, morbis ad crisin prodeuntibus. *In Prognost. Charter. Tom. VIII. p. 665.*

^k Quibus die septimo contingit crisis, iis urina rubram habet die quarto: nubeculam, ac alia secundum rationem. *Aphor. 71. sect. 4. Charter. Tom. IX. p. 181. et in Coacis Pranot. n^o 575. Charter. Tom. VIII. p. 885.*

^l De Diebus Decretoriis, lib. i. cap. 11. *Charter. Tom. VIII. p. 467.*

ing day demonstrates the critical day next following to be more or less distant, according as more or fewer signs of concoction attend upon such an indicating day, and as the other symptoms are milder or more malignant: for to all these a regard must be had, according to the advice given by Galen in the place lately cited from him.

If now the histories of those patients described in his Epidemics are compared with what has been said before, they will appear fairly to confirm the practical rules which are given concerning indicating days. Thus Silenus^m had on the fourth day all the signs that were bad, whence there was reason to fear a bad crisis on the seventh day. Yet death did not happen on the seventh day, but the patient lay speechless, with a coldness of the extremities, which could be no longer retained warm, and he made no urine; and therefore, as the seventh day is an index with respect to the eleventh, and all the bad symptoms were increased upon that day, so death was to be expected on the eleventh, as indeed it happened. In another patientⁿ he remarks, that all the symptoms were exasperated on the seventh day, the urine had a bad appearance, and there were many more malignant symptoms; but that patient also expired on the next critical day, namely, upon the eleventh. So likewise the eighth, ninth, and eleventh^o patients, had the very worst signs upon the fourth day, and expired on the seventh. But although it sometimes happens that patients of a strong habit, and in the flower of their age, escape the threats of death, both on the indicating and on the critical day, yet this is a very rare accident: and then, unless the disease changes for the better, they expire upon some other critical day; and in the meantime all the indicating days preceding that which is fatal, are attended with the most remarkable and malignant symptoms. Thus the woman who lay ill in the market-place of the Menda^p, was attended with
bad

^m Epidem. 1. ægrot. 2. Charter. Tom. IX. p. 101. ⁿ Ægrot. 12.
ibid. p. 114. ^o Epidem. 3. ibid. p. 242, &c. ^p Ibid. ægrot. 12.
pp. 252, 253.

bad signs from the beginning, but on the fourth day every thing was worse; on the seventh day, there were tossings of the whole body, with cold sweats, the extremities continued a long time cold, &c. which seemed to indicate death to happen on the eleventh; and yet she survived that day, although it was attended with green bilious vomits, a coldness of the extremities, and other malignant symptoms; but on the following days every thing was changed for the worse, and on the fourteenth day she expired, even though an hæmorrhage happened the same day from her nose, which nature had hitherto attempted in vain. But, that sometimes the fourth day is an index to the sixth, we are taught by the history of Philiscus^a, who had all the symptoms exasperated on the fourth day, and the urine was of a black colour; yet he expired not on the seventh, but on the sixth day. But in the end of this history Hippocrates observes, that the exacerbations in this disease happened upon even days; and hence appears the reason why death was rather to be expected on the sixth than on the seventh day. Many more instances might be alleged from Hippocrates, to prove what has been said; but it is presumed these are sufficient to shew the importance of indicating days.

From all that has been said, it is evident, that the prognosis in determining the events and times of diseases may be thus much promoted; and yet that there is no mathematical certainty in all this: and for this reason the ancient physicians were cautious in their presages, insomuch that though they could foresee death from the most malignant signs, yet they only declared very great danger, but seldom pronounced the patient's case to be entirely past help, hoping that something might be done for them to the last. On the other hand, though all the symptoms might seem mild enough in acute diseases, yet they neglected nothing, nor attempted any thing rashly; according to the admonition of Hippocrates^r himself, who says, that it is difficult to distinguish at the beginning such dif-

^a Epidem. i. ægrot. i. ibid. p. 99. ^r In Prognosticis. Charter. Tom. VIII. p. 665,

diseases as come to a crisis in a long period of time, from those which terminate speedily, since they are often much alike in the beginning. For the physician would greatly injure his reputation by pronouncing a disease short and easy, if it should afterwards turn out long and tedious, even though it should run through its course with no danger; for in that case, all the ill accidents are usually ascribed to the errors committed by the physician who has the care of the patient. Indeed the consequences are not so bad, if a patient whom the physician had pronounced to be past all hopes does yet recover, for then the patient's escape from the jaws of death is often ascribed to the physician's skill afterwards exerted. But in the mean time it is best for the physician to be cautious in this respect, and to be always mindful of the admonition of Hippocrates, mentioned before in the comment to §. 587. "That the predictions in acute diseases are not altogether certain, either with respect to death or recovery." Nor yet will those who are sufficient judges in these matters, condemn a physician of want of judgment, even though the patient should recover, whom he had pronounced to be past all hopes from the very worst signs observed; since even Herophorus escaped from the most dangerous disease beyond the expectation of Hippocrates.

But they are in a great error, who from thence conclude the observation of indicating and critical days to be useless, because in some uncommon cases the events do not perfectly correspond to the presages made by the physician from the doctrine of these days. But concerning these matters, more may be seen in the comment to §. 587, where we treated of a Crisis.

It is certain that Galen^t who had been a thousand times present at crises, assures us, *That concessions make the first and greatest sign of a good crisis at hand; but the second is what appears to be pointed out before by some indicating*

^s Epidemicor. 1. ægrot. 3 Charter. Tom. IX. p. 103.

^t Primum quidem et maximum signum instantis bonæ crisis cōtior es sunt; secundum autem, quod ab aliquo die indicatorio antea indicetur, cui annexa est diei judicantis potentia. *De Crisibus, lib. iii. cap. 3.* Charter. Tom. VIII. p. 429, 430.

indicating day, which bears the character or force of the critical day. It is therefore evident from all that has been hitherto said, that the doctrine of the ancients concerning critical and indicating days is of the greatest use in physic; the importance of which has been well remarked by Actuarius, where he says, Moreover, the same things happen in perfect crises, which were before pointed out by the indicating days. For if any thing of great moment is about to be done by nature herself in the said crisis, she declares it in a manner by a sort of prelude upon the indicating before the critical day. Therefore small sweats, or drippings of blood from the nose, or a discharge by spitting little concocted, either very scanty or more copious, first appear; and unless, perhaps, the morbid matter grows turgid or active, and the patient's strength is considerable, the indicating signs preceding anticipate the crisis, no otherwise than in some cases, on the contrary, the offending matter is slowly concocted and expelled by frequent returns of crises^u.

But it must not be imagined, that in the cure of diseases a bare enumeration of the days will enable the physician to make a presage from thence, and to commit all the rest to nature, contenting himself always, and in every case, with performing the part of a spectator only. For it is evident, from what we said before concerning the general cure of fevers, that to subdue, concoct, and render the morbid matter moveable and disposed for evacuation, requires such a moderation of the fever, that it may be neither too dull, nor yet destroy the body by a raging impetuosity: and at the same time the patient's strength and vital powers must be supported by a suitable diet; the symptoms must be mitigated, and those endeavours of nature by which she attempts to subdue and expel the matter of the

^u Atque et hæc in perfectis judiciis accidunt, quæ et in indicibus antea significantur. Nam si quid ipsa (*natura*) in prædictis judiciis magni momenti est factura, id ante judicii diem in indice quasi præludens nunciat. Quare aut exigui sudores, aut sanguinis e nare stillæ, aut parum cocti sputi educitur, aque aut pusillum, aut majus quippiam ante apparet: et nisi forte quod materia turgeat, aut ægri vires validæ sint, præcuntes significationes judicium antevertat, non aliter quam in albis per contraria pedetentim id, quod noxium est, crebris judiciorum circuitibus coquitur expelliturque. *Method. Med. Lib. ii. cap. 3. p. 60.*

the disease be promoted by proper remedies; those passages are to be lubricated, by which we have reason to expect the matter to be expelled will make its escape; all obstacles are to be removed, &c. Nor is this all that is to be done; but, when there is reason to expect a future ill crisis, all the endeavours of art are to be used to prevent it. Thus when Sydenham^w observed a perpetual nausea and endeavouring to vomit in continual fevers; and then, in the course of the fever, that the malignant humour, though in some measure subdued, was determined towards the intestines; and then, towards the end of the disease, that a diarrhoea followed, but often with so great violence, that it made a very bad crisis by exhausting the patient till he expired, his strength being already destroyed by the course of the disease; in the beginning of such diseases he gave a vomit, which usually prevented this fatal crisis; but after this had been done, the whole cure consisted in keeping the fever under a due regulation, by depressing it when too violent, and by raising it when too languid^x; and this more especially towards the end of the disease; for then by the use of cordials he safely promoted the critical separation and expulsion of the morbid matter, which in this disease usually happened about the fourteenth day by a moderate sweat. Whence it appears, that this great physician was not merely an idle spectator, but a diligent servant to nature; and that, by a careful observation of diseases, he knew how to remove the impediments, and when to apply such things as would promote the endeavours begun by nature, and to avoid such things as might be of any hindrance: although he made use of no great apparatus of medicines for these purposes; but, in people of the lower rank, to save them from expences, he brought about his intentions only by the most simple and cheap remedies. But when that due moderation of the fever appeared, of which we spoke before at §. 609, he ingenuously confesses, that he made use of no medicines at all, unless the importunity of the patient or his friends extorted something from him^y; and

^w Sect. i. cap. 4. p. 63.^x Ibid. p. 68.^y Ibid. p. 75.

and in such cases he only ordered what might be pleasing to the patient, and in the mean time could be of no injury. He was therefore far from being of the opinion of those physicians, who by bleeding, purging, and the like, disturb the whole face of the appearances in diseases: concerning which physicians, Galen² justly observes, that they are the instruments of mischief as often as they are called to sick people; for such think it a crime unless they attack the disease every day with different and violent medicines. But Sydenham has taught, in many parts of his works, with what unhappy success these methods were prosecuted in the cure of diseases, either by too much raising the violence of the fever by stimulating remedies, or by too much depressing it in the contrary method by bleeding, purges, clysters, and the like, so frequently repeated, as to depress and even destroy the patient's strength, together with that of the disease. For, by the former method, inflammatory fevers are soon rendered fatal; by the latter, fevers which often seem subdued, return again after a deceitful truce, and sometimes even continue stubborn for forty days and longer; whereas if they had been rightly treated, they would have run through their whole course in the space of a fortnight.

Nor are we to believe, that a prudent use of such things as may serve to moderate the violence of the fever, can easily disturb the order of the crises and critical days; or that such days can be of no use, unless the whole business of the cure is left to nature. For although Sydenham opened^a a vein, and oftentimes gave a vomit, or injected a clyster, in the beginning of the disease, if the violence of the fever required it; yet the disease went regularly through its course, because he always cautiously avoided not to depress too much the strength of the fever. Thus I have seen a copious hæmorrhage succeed from the nose on the seventh day of the disease, even though I had bled the patient twice before in an acute fever; and I believe the truth of this will appear plainly to every one who carefully attends the cure of diseases.

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² De Diebus Decretor. lib. i. cap. 9. Charter. Tom. VIII. p. 468.

^a Sect. i. cap. 4. p. 63, &c.

Sometimes the fever goes off likewise on a critical day by vomiting or a diarrhœa.] We have already demonstrated of how great importance evacuations are in diseases, when they happen on critical days; nor is this true only of an hæmorrhage from the nose, but likewise of the other evacuations enumerated in the present aphorism. But since so many viscera may discharge themselves by these passages, and even the whole body may derive its humours by these ways, as we demonstrated before when we treated of a Vomiting and Diarrhœa as symptoms in fevers; therefore the reason is evident, why the matter of the disease is often critically discharged by these passages. But it must be observed, that not every vomiting or purging is useful in this respect; for a vomiting we before ranked among the malignant symptoms of an ardent fever, §. 739; and it will presently appear, under the present aphorism, that too great a flux from the bowels is likewise fatal in an ardent fever. For we here treat only of that vomiting and purging which happens in a fever after a concoction upon a critical day, and after which the relief perceived by the patient demonstrates their salutary effects: for by this criterion Hippocrates^b more especially distinguishes these salutary evacuations from such as are symptomatic and mischievous; namely, if they are serviceable, or relieve the patient, and are easily supported, as we said more at large in the comment to §. 594, n^o 2. where we also treated of the signs which usually precede a critical vomiting or diarrhœa; and we likewise remarked, that a crisis seldom goes off by vomiting only, but is usually attended with a diarrhœa at the same time.

By sweat.] Namely, such as is warm, copious, and diffused equally throughout the whole body. See what has been said concerning a critical sweat, in the comment to §. 594, n^o 2. where we also enumerated the signs by which a critical salutary sweat might be distinguished, and foreknown when about to happen.

By urine.] Although by the urinary passages are naturally expelled such parts of the humours, as, being

rendered acrimonious by the force of the circulation, would be mischievous if they were any longer retained in the body; yet the matter of the disease very rarely escapes this way only, but generally other evacuations assist at the same time. And hence a plentiful and laudible sediment in the urine is rather to be esteemed a sign of concoction, than that an entire cure may be expected by that discharge alone. Thus Hippocrates^c indeed remarks, that a plentiful discharge of urine containing a great deal of laudable sediment, a bleeding from the nose, and bilious stools, or a dysentery, are the four ways by which the patients were preserved who were afflicted with the ardent fever of an epidemical constitution which he describes: but at the same time he takes notice, that many of those patients were not cured by one only, but by several of the forementioned evacuations happening at one and the same time. But again, concerning the critical evacuation of the febrile matter by urine, what has been said before at §. 594, n^o 2. may be consulted.

Hence also Galen^d reckons an hæmorrhage from the nose, and a copious sweat following after a violent rigor or shivering, and flowing from the whole body, also a bilious discharge by vomiting or stool, as the ways by which an ardent fever usually terminates critically.

By a thick spitting.] Since an ardent fever, as we shall declare in the aphorism next following, acknowledges for its proximate cause too great a thickness of the blood deprived of its more fluid parts, therefore the blood will be thus rendered greatly disposed to hesitate in the smallest extremities of the arteries, and the pulmonary arteries will begin to be stuffed up and obstructed with impervious blood; which appears from the deep, laborious, and quick respiration, with a burning heat about the vital organs, the air itself expired being almost scalding, as we said before at §. 739. Hence also Hippocrates^e observes, that an
ardent

^c Epidem. 1. Charter. Tom. IX. p. 74.
cap. 3. Charter. Tom. VIII. p. 430.
Charter. Tom. VII. p. 622.

^d De Crisibus, lib. iii.
^e De Affectionibus, cap. 3.

ardent fever usually turns to an inflammation of the lungs: and he remarks, that in this disease a bilious spitting is discharged; and in another place^f, that such patients spit much, and are afflicted with an empyema or purulent spitting. For the same reason he reckons a slight cough among the symptoms of an ardent fever, (§. 739.) When therefore this disease inclines to health, the impervious parts of the blood which hesitated in the pulmonary vessels begin to be dissolved, and are expressed through the dilated orifices of the exhaling arteries dispersed throughout the area or surface of the lungs, so as to form a thick spitting, as we shall see hereafter when we come to treat of a peripneumony. Moreover, in this disease the whole surface of the lungs exposed to the air is often dry, in the same manner as we sometimes observe in the mouth, fauces, and tongue: And in the same manner as we often afterwards observe entire skins to be cast off from the whole internal surface of the mouth, together with a tough viscid mucus; so something of the same nature seems to be performed in the lungs, whence the spitting in such a case appears at first thick and brown or discoloured, and is afterwards discharged more viscid and tenacious. Hippocrates ranks a thick spitting amongst the critical evacuations of a fever, when he says: *If now blood flows from the nose, the disease terminates; as it also does, if critical sweats supervene, with thick and white urine, and a light sediment; as also if some abscess should arise. But if the ardent fever goes off without these, there will either be a return of the disease; or if the patient recovers health, there will be a pain or abscess at the hip or thigh, and a thick spitting^g.*

But soon after he mentions^h a thick spitting as critical in an ardent fever. But Galenⁱ observes, in his

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^f De Morbis, lib. ii. cap. 25. ibid. 556.

^g Et si sanguis e naribus effluerit, solvitur affectus; atque si sudores supervenerint judicatorii legitimi, cum urinis albis crassisque, et lævibus sedimentis; ac si abscessus aliquis ortus fuerit. Si vero absque his soluta fuerit (febris ardens) recidiva morbi rursus erit, aut coxæ aut crurum dolor aderit, exspuetque crassa, si sanus futurus sit. *De Victu in Morbis Acutis, Charter. Tom. XI. p. 122, 123.*

^h Ibid. p. 126.

ⁱ Ibidem.

commentaries to this place, that such a thick spitting happens only when the lungs themselves have been affected in the ardent fever. But as the lungs are seldom affected of themselves, without almost all the other functions of the body being disturbed, it is evident that a thick spitting may frequently concur together with other critical evacuations, but that the disease is seldom or never critically terminated entirely by such a spitting.

A return or increase of the fever upon an even day before the sixth, is extremely bad.] An exquisite ardent fever, as we said before at §. 738, retains all the appearances of a tertian; from which it differs only by not invading with a rigor or cold shivering, and in having no perfect intermission; and therefore it is evidently peculiar to an exquisite ardent fever, to have exacerbations or fits of increase upon uneven days. If now at the same time, and on an even day, a new accession happens, when the violence of the disease used to be more remiss, the patient will find himself to be so much the worse, and his strength will be so much the sooner exhausted. But if an ardent fever arises from the conjunction of a continual fever with an intermitting tertian, (see §. 738.) so circumstanced, that the first fit of the tertian falls out upon the second day of the disease, and exacerbations appear upon even days, namely, the fourth, &c. it is therefore esteemed one of the worst signs, because then the exacerbation falls out upon the sixth day of the disease. But such diseases as have their exacerbations upon even days come to a crisis also upon even days, as we said before in treating upon critical days under the present aphorism; and therefore there is danger of a crisis happening upon the sixth day. But it appears, from what has been said before, how infamous the sixth day in diseases was reckoned among the ancient physicians; since the crises happening on those days were for the most part either malignant, or at least imperfect; or if they were at any time of service on that day, it was always with great disturbance and great danger attending at the same time.

Hence

Hence the reason is evident, why the accessions upon even days before the sixth are so dangerous; but after the sixth day there is less danger, because the next fit of increase following falls out upon the eighth day, and there is no such great danger of the patient's perishing on the seventh day, which is milder; and therefore, when the disease gets over the seventh day, it will not be an exquisite ardent fever, which Galen affirms to terminate within the first week, in the passage before cited under the present aphorism. Such a fever will therefore belong to those which are called *simply acute*, and which usually terminate for the most part in fourteen days time: and as the fourteenth day is both even, and at the same time a day remarkably critical, if the exacerbation falls out upon it, there is reason to hope that a perfect crisis will happen the same day. Thus the just observations of Hippocrates^k are fairly confirmed. For in those afflicted with ardent fevers, and who seem to be the most in danger, he remarks, among other bad signs, that the accessions happened upon even days, that the symptoms were the worst upon the fourth, and that they died with a sweat upon the sixth. Thus also, in another epidemical constitution^l, ardent fevers were very fatal; and he remarks, that many patients had exacerbations upon even days.

In this case a black thin urine, small in quantity, is fatal.] Hippocrates^m condemns black urines in his Prognostics, as the worst and most fatal; and even Galenⁿ testifies, that he never saw any recover after voiding such urine, and makes it a sign of an internal mortification; as if the humours, being corrupted and gangrenous, then escaped through the urinary passages. But he makes that kind of urine less dangerous in which only the sediment is black; and still much less dangerous is that in which only a small black cloud appears. And for this reason Hippocrates seems in his Coan Prognostics^o to say, *Perniciosa est, urina ni-*

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^k Epidem. lib. i. Charter. Tom. IX. p. 70. ^l Ibid. lib. iii. p. 274.
^m Charter. Tom. VIII. p. 635. ⁿ De Crisibus, lib. i. cap. 12.

^o No 580. p. 886.

grum sedimentum habens, et nigra; "That black urine which has a black sediment is very pernicious." For soon after ^p he says, that black clouds in the urine denote a quartan fever in such as are erratic. Such an urine is therefore more especially esteemed fatal, when it is all over uniformly black, and more especially if it is likewise fetid at the same time. But the danger is more increased if such urine is also thin, and small in quantity; because it denotes a gangrenous disposition of the humours, while in the mean time such as are corrupted are for the most part retained, and not sufficiently discharged by the urine. And hence Hippocrates ^q remarks, that the urine was black, thin, and small in quantity, in those who expired of ardent fevers.

But lying-in-women more especially are relieved by discharging a great quantity of black urine, when they labour under a suppression of the lochia, as Galen^r remarks in his comments upon the case of a lying-in-woman, who from a suppression of the lochia was taken with an acute fever the third day after delivery, and who made a great quantity of thin black urine upon the eleventh day; but afterwards turning watery, the woman died on the eightieth of the disease.

But in his Epidemics there is the case of a patient who recovered though he made thin and black urine. Thus Nicodemus^s, on the first day of the disease, made thin and black-coloured urine, as also on the second day; when yet, on the twenty-fourth, there was a great quantity of a white urine with a copious sediment, and a plentiful hot sweat appeared all over his body, which terminated the disease critically; and this altho' the fever had perpetual exacerbations or fits of increase upon equal days. But in this patient, on the fourth day of the disease, the urine was thin; but we do not read of its being black. And the cross woman^t who lay ill in Thasus, though she made thin and black urine about the third day, had yet a critical sweat on the night.

^p N^o 582. *ibid.*

^p Epidem. lib. i. Charter. Tom. IX. p. 70.

^q In Comment. 3. in lib. iii. p. 295.

^s Ægrot. 10. Epidem. 30.

Charter. Tom. IX. p. 304.

^t Ægrot. 11. *ibid.* p. 305.

light following the third day, which terminated the disease, the menses appearing also at the same time with the crisis. In Heropytus, the urine was thin and black in the beginning of the disease, until the fourteenth day; and yet he had a crisis on the hundredth day^u. But it is to be observed, that in these patients the urine was indeed black and thin; but Hippocrates does not add, that they were also small in quantity: and therefore from hence it cannot be concluded, that black urine, thin, and small in quantity, is not always fatal. But in Metones^w, who also escaped, the urine was thin and blackish coloured, and had likewise a blackish diffused cloud; and was therefore less malignant than perfectly black urine.

A spitting of blood, as also bloody urine, is fatal.] For these denote, that the force of the blood moving through the vessels is so great as to break them, and extravasate their contained blood. And how great the danger is, when this accident happens in the vessels of the lungs, readily appears, if we consider, that in an ardent fever the blood is very swiftly moved thro' the pulmonary vessels, and that therefore these ruptured vessels will be every moment kept open by the impulse and quantity of the blood, so as to prevent all hopes of their healing up or closing; which in an hæmoptoë can be only cured by such things as render the motion of the blood extremely quiet thro' the vessels, and at the same time render them mild without the least acrimony; the contrary of all which takes place in the present disorder.

But that discharge of blood which is made by urine, happens chiefly, perhaps, from the saline and oily parts of the blood being rendered more acrid by the most acute fever (see §. 100), and which, being naturally evacuated by this emunctory, corrode the small vessels as they pass; and therefore this sign denotes the very worst kind of degeneration in the humours. Those hæmorrhages therefore which happen by these emunctories are never critical, nor arise from the strength of nature overcoming the disease, but from the most violent.

^u *Ægrot. 9. ibid. p. 303.*

^w *Ægrot 7. lib. i. Epidem. p. 109.*

lent insult of the disease and increased acrimony of the humours; whereas, on the contrary, an hæmorrhage from the nose is frequently observed salutary in an ardent fever, as we observed before: and hence bloody urine, or a violent eruption of blood from the lungs, in the small-pox, were always esteemed the most certain signs of death by Sydenham^x; who confesses, that he was by no means able to suppress these hæmorrhages.

The deglutition being injured is bad.] How great a dryness of the fauces, tongue, and all the internal parts of the mouth, sometimes happens in ardent fevers, we said before at §. 739. But from so great a dryness of these parts the swallowing is injured; and therefore this symptom is bad, both as a cause, and as a sign. As a *cause*, inasmuch as the cure of this disease requires a large quantity of thin watery liquors to serve as a vehicle to throw out the matter of the sweat and urine, as we shall observe hereafter, at §. 743, under the cure of an ardent fever: As a *sign*, because it denotes a very bad dryness of the organs serving to the act of swallowing; and even sometimes it denotes an inflammation of them, although dryness alone may injure the deglutition, and frequently does impede it in ardent fevers. Hence Hippocrates says, *For the patient to be suddenly taken with a sense of suffocation, and inability to swallow, without a tumour, is bad*^y.

A coldness of the extremities is very bad.] To wit, when the extreme parts of the body no more recover their warmth, or at least continue cold for a long time. For since an ardent fever is a kind of continual remittent, (as we said before at §. 738.) and the remissions are often manifest, and there are likewise exacerbations observed in this fever; the extremities are often cold at the time when the fit of increase comes on, almost in the same manner as happens in the beginning of the fever (see §. 563.): but the cold arising in the extremities from this cause soon ceases, and is followed with an intense heat; whence such a coldness is no
very

^x Sect. iii. cap. 2. p. 197.

^y In febribus derepente suffocari, et deglutire non posse, citra tumorem, malum. Coac. Prenot. n° 278. Charier. Tom. VIII. p. 867.

very bad sign. But when the blood is become so thick by the heat of an ardent fever, that it is scarce able to pass through the smaller arteries, it then cannot be propelled to the extreme parts of the body, but continues only to be moved with a rapid motion through the larger and adjacent vessels about the heart; whence the coldness of the extremities is then attended with an intolerable heat about the vital viscera, (see §. 739.) and this coldness of the extremities continues a long time, insomuch that frequently the parts no more recover their heat; as happened to Philiscus², Silenus², and many other patients who perished, and whose histories are given us by Hippocrates in his books of Epidemics.

A redness and sweating of the face are also bad signs.] When a warm sweat is equally diffused throughout the body, it is one of the very best signs; and an ardent fever, as we have already seen, frequently terminates by such a sweat. But we here treat only of the sweat observed in the face and head, which frequently happens in dying people. For we see in acute diseases, a little before death, that although the skin has continued extremely dry throughout the whole course of the disease, yet there are drops of sweat burst forth, without running down, but retaining their figure adhered to the skin, and commonly such sweats are also cold; concerning which, Helmont expresses himself in an odd manner, (see the comment to §. 432.) "That it is not so much sweat in its own nature, as the alimentary dew, or most fluid part of the juices, dissolved and commanded to the skin by death." But sometimes also, such a sweat, even hot, collected in drops upon the face, appears as a bad sign: for then the blood being impelled by the violence of the fever into the smaller vessels, causes the face to look red; and at the same time the most fluid parts are expressed by the impulse of the humours urging behind, and which bursting forth upon the surface of the skin are collected in drops. For when the matter of the

disease,

² Epidem. 1. ægrot. 1. Charter. Tom. IX. p. 99.

² Ibid. ægrot. 2. p. 101.

disease, being dissolved, and moved freely through the pervious vessels, is expelled from the body in a sweat, such a sweat never gathers in drops, but equally escapes from the whole skin in the form of a moist vapour, or being collected together it trickles down in the form of a liquor. Hence Hippocrates^b calls those good sweats, which distil in drops, and exhale a vapour: But, on the contrary, he observes, That those sweats are the worst which are cold, and appear only about the head, face, and neck; for such presage death in an acute fever, and in a milder fever they denote a long continuance of it^c. But he equally condemns those sweats which come forth and are collected together upon the skin like millet-feed; as also those which break out upon the neck only. Hence also in another place^d he observes, that those which are a bad presage in an ardent fever, never appear throughout the body, but only in little sweats about the forehead and about the clavicles. It is therefore evident, what a bad sign is afforded from a redness of the face, beset with drops of sweat, in an ardent fever: for it denotes an inflammatory thickness and imperviousness of the blood, and that it is either forced into other improper vessels, or else hesitates about the smallest extremities of the sanguiferous arteries, and that a very small portion of it can as yet be expressed; as also, that, death being now at hand, the extremities of the small exhaling vessels in the skin are so relaxed as to transmit a thick and gross sweat. This has been well remarked by Hippocrates, when he says, *Moreover, the general cause or reason of sweats ought to be known. For some arise from a relaxation of the parts of the body, and others from the violence of inflammation*^e. But what sweats are good or bad in fevers, has been said more at large in the comment to §. 594, no 2.

A swelling under the ear, not coming to suppuration, is destructive.] What a parotid or swelling under the

^b In Prognosticis. Charter. Tom. VIII. p. 609.

^c Ibidem.

^d Epidem. lib. i. Charter. Tom. IX. p. 70.

^e Caterum universalem sudorum rationem novisse oportet. Alii enim sunt ob corporum resolutionem, alii vero ob phlegmones vehementiam. In Prognosticis. Charter. Tom. VIII. p. 609.

ear is, was said before in the comment to §. 416: where it was observed from Celsus^f, that sometimes parotids arise when the person is in health, and in that case repelling medicines may be used; but when they arise from an ill state of health, he condemns the use of cutient or repelling medicines, and observes it to be more commodious to bring them to maturation, and to open them as soon as possible. But parotids were before numbered among those ways of terminating a fever (§. 593.) whereby it tends to another disease, while the critical matter is not expelled out of, but deposited upon some part of the body. Therefore, when parotids arise in an ardent fever, it is a sign that the febrile matter is critically deposited towards the glands there seated; and as the blood in this fever is deprived of its more fluid parts, and at the same time has acquired a greater acrimony, therefore a mild resolution of these parotids cannot be expected, inasmuch as, to effect that, requires a mild state of the humours, a sedate motion of them, and the obstructing matter to be not over compact, as we observed at §. 386: therefore a suppuration only can take place here; which if it is not procured, a worse manner of terminating the inflammation must be expected. But sometimes the swelled parotids suddenly disappear from the morbid matter returning again into the blood; whence the very worst relapses, and even death itself, may be expected to follow in ardent fevers: for, as we said before under the present aphorism from Hippocrates, critical signs not terminating the disease are in some measure fatal, but in part render the termination of the disease difficult; for they denote that the efforts of nature have been exerted to no purpose, which is always esteemed one of the worst signs, unless considerable discharges of the like kind immediately appear in other parts of the body, or unless the matter of the disease is thrown off by other critical evacuations, as Hippocrates well observes in his Coan Prognostics, where he has the following passage: *Parotids arise in acute diseases, and chiefly in ardent fevers; but unless they come*
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to maturity, and procure a crisis; or unless blood flows from the nose, or the urine has a thick sediment; the patients do not recover. But for the most part such tumors subside, before they prove fatal. But it ought likewise to be considered, whether the fever itself is thereby increased or diminished, according to which the physician is to give his opinion^g. For thus is limited that presage, which in another place is laid down too absolute: That if abscesses about the ears do not come to suppuration in an ardent fever, the patient seldom recovers^h. For if the morbid matter escapes by other ways, there may be hopes of a recovery. Hence likewise it is a very just admonition of Hippocrates, to consider at the same time whether the fever is abated or increased: For if the fever suddenly increases when the parotids disappear, we know that the febrile matter mixing again with the blood produces those disturbances, and that therefore a bad termination of the disease is to be feared; but if no such increase of the fever happens, there is reason to hope that the matter will in a little time escape by other passages, or be deposited upon some other part. And hence he very justly pronounces in another placeⁱ, That those parotids are to be condemned, which gradually disperse without critically terminating the disease. Sometimes it also happens that the parotids disappear, and soon after the fever either returns or is increased, whence again the parotids swell out, and continue^k. But oftener, when the parotids disappear, the matter of the disease is deposited upon some other part, or else is evacuated from the body if the patient is to recover. Accordingly Hippocrates^l remarks, that, upon a disappearing of the parotids,

^g Parotides ex acutis morbis, maxime in febribus ardentibus, fiunt; et si non judicationem fecerint et maturescant, aut ex naribus sanguis fluxerit, aut urinæ sedimentum crassum habuerint, pereunt. Plerique vero talium tumorum antea subsidunt. Verum considerare oportet insuper etiam ipsas febres, siue intendantur, siue remittant, atque sic pronunciare. N^o 208. Charter. Tom. VIII. p. 863.

^h Ex febre ardente, abscessu circa aures non suppurato, raro servantur. N^o 139. *ibid.* p. 859.

ⁱ Prorrhet. lib. i. in fine. Charter. Tom. VIII. p. 808. ^k Hippocrat. de Humoribus in fine libri. Charter. Tom. VIII. p. 581. & Epidem. lib. vi. Charter. Tom. IX. p. 474. ^l Epidem. 1. Charter. Tom. IX.

parotids, the patient was afflicted with an uneasiness about the left hip and ilium; and the patient slowly recovered, namely, on the fortieth day. And a little after he has the following passage: *In those who have swelling about the ears, with pain, in fevers, the fever sometimes goes off critically without those tumours subsiding or coming to suppuration; and in such, a bilious diarrhœa, or dysentery, or a thick sediment in the urine, terminates the disease, as in Hermippus Clazomenius^m; whose history is given us in the same bookⁿ. In this patient, the parotids, which arose on the seventeenth day of the disease, indeed continued without coming to suppuration; but they afterwards subsided on the thirty-first day of the disease, by a flux from the bowels and thick urines. From all which it is evident, that parotids in ardent fevers not coming to suppuration are destructive, unless during their continuance without suppurating, or while they are subsiding, a crisis is made other ways, either by an efflux or a deposition upon other parts; and then, in such a case, the patient has no critical termination of the disease, till after a considerable time.*

Sometimes also it was no uncommon thing for parotids to disappear, without coming to suppuration, in certain ardent fevers, which spread epidemically: and Boerhaave^o remarks, that this happened without danger, when evacuations were procured by sweats or a flux from the bowels.

Nor yet must we believe health to be always an infallible consequence of parotids coming to suppuration in ardent fevers; for those crises which are made by abscess or deposition, are always less safe. Thus Hippocrates remarks^p, that the parotids came to suppuration in two patients, and yet they perished. The truth of which is also confirmed afterwards by the observations of a physician of great name^q.

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^m Quibus tumores circa aures in febribus cum dolore attolluntur, quibusdam critice cessante febre, neque subsidebant, neque suppurabantur; his orta diarrhœa biliosa, aut dysenteria, aut crassarum urinarum sedimentum solvit, velut Hermippo Clazomenio. *Ibid.* p. 75.

ⁿ *Ibid.* p. 112.

^o In Commentariis in Coac. Hippocrat. oper.

Tom. I. p. 137.

^p Epidemic. 1. Charter. Tom. IX. p. 78.

Holler. & Jacotii Commentaria in Coac. Hippoc. p. 209.

But when parotids arise in people otherwise in health, and without a preceding fever, as I have frequently observed, there is no danger in these though they do not come to suppuration, but disappear again; which Hippocrates^h observes to have happened in an epidemical fever of a certain constitution: but then, as he justly observes, those tumours are lax, large, and spread abroad without inflammation, and are free from pain; and in the cure of these Celsus pronounces the use of discutient or repelling medicines to be safe. But on the contrary, parotids arising in an ardent fever are usually less, harder, and attended with pain.

Too great a flux from the bowels is also fatal.] We have already seen, that a critical flux from the bowels sometimes cures an ardent fever: but we here treat of that flux which is rather to be esteemed symptomatic and profuse, or colliquative. A constipation of the bowels in these diseases is never of service: for since the bile, rendered more acrid or corrupt, kindles these fevers, as we have already observed; and since even healthy bile is soon corrupted by a great heat; it must be evidently more useful for these foul humours to be discharged from the first passages; since otherwise, by the free access of air, with heat and stagnation, they may degenerate into the most malignant putrefaction in a very short time. Hence also it is, that clysters are so useful in ardent fevers, not only inasmuch as they dilute, relax, and cool, but also as they wash out every thing putrid lodged in the intestines. It is therefore no bad sign for the bowels to be looser than ordinary in an ardent fever: so far from it, that Hippocratesⁱ remarks, ardent fevers seldom happen to those who have loose bowels; and he observes, that the bowels were constipated in those who were afflicted with the most mischievous symptoms from an ardent fever^k. But when a great quantity of humours escape by stool, and especially before there are any apparent signs of concoction, Hippocrates pronounces a diarrhœa to be fatal,

^h Lib. i. Epidem. Charter. Tom. IX. p. 19.
ⁱ et aquis. Charter. Tom. VI. p. 190.
 Tom. IX. p. 70.

^k Epidem. lib. i. Charter.

tal, (as we have several times observed, §. 386, 590, &c.): but in this case, what is discharged by stool smells intolerably fetid; whence there may be reason to fear a putrid dissolution of the humours, and that the patient's strength may be overpowered by the great quantity of juices thus exhausted from the body; and therefore such a flux from the bowels is mischievous both as a cause and as a sign.

When the fever with a trembling turns to a delirium, it often ends in death.] When we treated of a febrile Trembling at §. 627, it appeared, that an immobility of the fluid to be moved through the arteries of the encephalon is frequently the cause of tremors in diseases. But since the most fluid parts of the blood are dissipated in an ardent fever, and the rest are condensed or thickened by a great heat, the reason is evident why tremors happen in an ardent fever. But when the trembling is followed with a delirium, we know that from the same cause the whole common sensory is disturbed, and consequently that there is the greatest danger of death.

We are told indeed by Hippocrates^l, that tremblings arising in an ardent fever remove a delirium: but Garen^m remarks, in his commentaries to this place, that the term *remove* is improperly used here, since it generally signifies the cure of a disease; but in the present case it only denotes a transition or a remove of the disease from a bad state to a worse. It is indeed true, that a delirium following frequently removes the tremors, more especially if it is of the raving kind; for when such patients are frequently possessed of an amazing strength in their muscles: but then this is apparently always of unhappy import.

Or turns to a peripneumony often with a delirium.] That an ardent fever often turns to a peripneumony, was said before in the comment to §. 739; the reason of which is evident from what was said above, as also why a delirium frequently attends. But when both these attend in an ardent fever, there is no room to

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doubt.

^l Coac. Prænot. n^o 133. Charter. Tom. VIII. p. 852. & Aphor. 26.
^m Ibidem.

doubt but the patient is in the greatest danger. Hippocrates even pronounces the concurrence of these two together to be fatal: *Whenever a difficulty of breathing and a delirium attend in a fever which is not intermitting, they afford a fatal sign*ⁿ.

[This kind of fever is the worst which arises after severe gripings of the bowels.] For this denotes that the intestines and mesentery are invaded with an inflammation. Now an ardent fever with such an inflammation is dangerous in the highest degree, lest it should in a little time cause a gangrene in these parts. And how suddenly an inflammation here seated may turn to a gangrene, was said before in the history of Wounds of the Abdomen; and we shall hereafter treat of this affair more particularly, when we come to consider an Inflammation of the Bowels. Hence the reason is evident, why Hippocrates^o condemns violent pains about the viscera in acute fevers as bad; and in another place says, 'That an ardent fever in a person who has a pain and disorder in the bowels, is pernicious' ^p.

But it sometimes goes off critically, with a rigor or cold shivering.] A rigor is said to attend, when the whole body is shook, with a sense of coldness at the same time; and if this is slight and momentaneous, it is called a *shake* or *shiver*, (see §. 563). It is also termed a *horror*, because a like concussion of the body arises from the sight or remembrance of any thing very horrid or frightful. Hence Galen says, that they do not seem to be very wide in their notions of this disorder, who make a rigor a sense of coldness; for a sense of coldness is not always attended with real cold. ^a *For those parts which have a palsy, are torpid, and either difficultly or not at all exert any sensation, are all cold, &c. But*
none

ⁿ Quibuscunque in febre non intermittente spirandi difficultas fit, et delirium, lethale. *Aphor. 50. sect. iv. Charter. Tom. IX. p. 167.*

^o Ibid. 66. p. 177.

^p In Coac. Prænot. n^o 131. Charter.

Tom. VIII. p. 859.

^a Quæ enim resoluta sunt, torpida, difficili aut nullo prorsus sensu prædita, omnia perfrixerunt, &c. Sed nullum ex his frigiditatem, quæ in ipso est, sentit, unde neque riget; sin autem sentiat, protinus et rigebit. *De Tremore, cap. 6. Charter. Tom VII. p. 208.*

one of these patients feel the cold which is in themselves, and therefore they have no rigor; but the coldness is no sooner perceived, than the patient will be immediately taken with a cold shivering.

Hippocrates^r has long ago observed, that a super-vening rigor removes an ardent fever. For in an ardent fever (as we shall declare in the aphorism next following) the blood, being deprived of its more fluid parts, begins to hesitate about the extremities of the arteries, and makes an inflammation almost throughout the whole body. Thus the free course of the blood being impeded into the veins, these latter will empty themselves and pour almost all their blood into the system of the arteries; whence will arise the greatest resistance to the blood impelled from the heart into the arteries; thence a violent attrition, and consequently an intense heat, follow. But when this inflammatory viscosity of the blood begins to be dissolved by the use of diluent and attenuating medicines, so as to dispose that fluid to pass freely through the ultimate extremities of the arteries into the veins, these obstructions are removed, and the blood finds a ready passage into the empty veins. In one moment therefore will be removed that great resistance which was before in the arteries; and therefore the attrition, which was before violent, will be now little or nothing: thus therefore the heat is immediately and suddenly lessened, as the blood impelled into the empty veins is moved forward towards the heart, almost without any mutual attrition of its parts against each other. But even afterwards the blood received from the veins by the heart, is freely propelled through the pervious arteries, whence it meets with a much less attrition. If now it be considered, that, during the whole course of the disease, the mass of the fluids to be removed is much lessened, since fat people sometimes lose half their weight, and are pale and thin in their recovery from this dangerous disease; it is again evident, why such a sudden coldness arises from the restitution of

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the

the free course of the blood through the arteries. But a sudden sense of cold, after intense heat, is followed with a concussion of the whole body; that is to say, a rigor; as those experience, who, coming out of the warm bath, expose themselves to the cold air.

From hence it is evident, what this rigor is which sometimes critically terminates an ardent fever; for it is not every rigor that is good which happens in this fever, but only that which proceeds from a sudden restitution of the equable motion of the humours thro' the vessels. For when a new accession of the fever happens, either upon even or uneven days, then also a rigor attends, but much slighter than that which is critical. Moreover, we distinguish that salutary rigor from others, by its happening after the signs of concoction, and on a critical day; and from its being preceded, or soon after followed, with critical evacuations. Thus, when a profuse hæmorrhage happens from the nose in an ardent fever, it is frequently followed with such a critical rigor, which alarms the patient and by-standers with vain fears of death at hand, when at the same time it paves the way to health. For by so great an evacuation the pressure of the arterial blood against the obstructed extremities is so much lessened, that a resolution of the inflammation succeeds by a retropulsion of the obstructing particles, (see §. 400, n° 1). But that the time when a rigor happens in an ardent fever ought to be carefully observed, in order to form from thence a just prognosis, is evident from Hippocrates^s, when he observes, that rigors happening on the sixth day in fevers render the crisis doubtful or difficult. But this is in common to a rigor with all other crises, as is evident from what was said under the present aphorism concerning critical days. For it then appeared, that the sixth day was always suspected by the ancient physicians, because for the most part bad or at least unfaithful crises fell out upon that day. And that a rigor may proceed from bad causes, is evident; for when the blood, being rendered impervious, cannot be propelled to the extreme

parts

^s Coac. Prænot. n° 15. Charter. Tom. VII. p. 854. et Aphor. 22. cct. iv. ibid. Tom. IX. p. 150.

parts of the body, it produces a rigor, which is next followed with a coldness of the extreme parts, which is a very bad sign in an ardent fever. Such rigors are condemned by Hippocrates, when he says, *A coolness of the parts not recovering their warmth from a rigor, is of bad import*^t. But the free motion of the humours through the vessels being restored after a critical rigor, in a little time followed with an equable heat diffused throughout the body. Thus in the woman who lay ill in the Mendæan market-place^u, there were frequent rigors; but such as were rather attended with an increase of all the symptoms, or a coldness of the extremities, no more recovering their warmth; and therefore the patient expired.

But although such a critical rigor denotes the matter of the disease to be dissolved and rendered moveable in an ardent fever; yet that matter seldom or never is so conditioned as to be assimilated into healthy humours, so as to flow with them through the vessels without any notable disturbance of the functions. For the humours are too much changed by so violent a disease; and hence the morbid matter, when resolved, commonly retains some ill quality repugnant to an equable circulation; and therefore a critical evacuation almost constantly follows after a rigor: therefore it follows, that an ardent fever goes off indeed with a rigor, but is seldom or never cured by the rigor only. Thus a rigor happened on the eighth day to Cleonactides^w; but then on the same day happened a copious sweat; and the urine, containing a red uniform sediment, completed the crisis.

. 742. **T**HESE particulars being explained, it will not be difficult to know this kind of fever when present: Nor will there be any room for doubt or obscurity with respect to its more near and proximate cause; for it arises from

^t Ex rigore perfrigerationes, non recalescentes, malæ. *Prorrhæticæ*.
b. i. Charter. Tom. VIII. p. 744.

^u Epidem. 3. ægrot. 12. Charter. Tom. IX. p. 252. ^w Epidem.
ib. i. ægrot. 6. Charter. Tom. IX. p. 108.

from the blood being deprived of its more fluid or mild parts, joined with an inflammation throughout the whole body, with a great strength of the vital powers in the patient: But moreover, a pretty sure presage of the future event may be also derived from the same principles.

From what has been said at §. 738, 739. it plainly appears what kind of fever is to be called *ardent*, and wherein it differs from other fevers. For it differs from a putrid synochus or continent, inasmuch as its course is not one continued strain from the beginning to the end, but it is attended with remarkable fits of remission and exacerbation. But it is distinguished from intermitting fevers, in that the force of the fever does not perfectly cease for a time. But it differs from the slighter continual remitting fevers, chiefly by the intense heat, which is greatest about the vital viscera, and more remiss towards the extreme parts, attended with unextinguishable thirst, and a dryness of the whole body: however, it belongs to the same general head with these last, and differs from them only in the greater number, violence, and malignity, of its symptoms.

But that the proximate cause is such as is described in the text, may appear from considering the remote preceding causes, and the principal symptoms which are observed to attend in an ardent fever. For that too much labour, with the heat of the sun, and the other causes before enumerated at §. 740. dissipate the most fluid and mild parts of the blood, namely, the watery, no one can doubt: and at the same time it is equally evident, that what remains, being deprived of its diluent watery parts, will acquire a greater acrimony, and a disposition to an inflammatory tenacity; from whence alone, or increased by the use of acrid heating aromatics, and sometimes by the concurrence of an epidemic stimulus, the quickness of the circulation is increased, and by that means a violent fever is kindled. But all this is likewise taught from the principal symptoms before enumerated at §. 739. more espe-

pecially the burning heat, difficult respiration, dryness of the whole body, unextinguishable thirst, and disturbance almost of all the functions.

But since an ardent fever is so dangerous, it is more especially incumbent on the physician to form a just refuge, from whence it may appear what is to be feared or hoped for in the disease. For he will perfectly secure himself from all blame*, if he foresees and predicts which patients will recover, and which not; and therefore Hippocrates, in a particular manner, advises physicians to apply themselves closely to the study of Prognostics. He indeed acknowledges it is better to cure diseases, than to foreknow their events: but to cure all patients is not in the power of any one; and the physician who is able to foresee the future accidents in diseases, will be also better able to reserve such as are capable of being cured.

But from all that has been already said concerning the causes, symptoms, and progress of an ardent fever, a very firm prognosis may be derived. That this fever is attended with danger, is universally acknowledged; but the different degrees of the danger we learn from the number and violence of the symptoms. We easily foresee the injuries about to be offered to the functions of the brain, as we know that the blood, being less pervious, and impelled with great rapidity to that part, will dilate and enter the orifices of the smaller vessels; whence an obstruction, inflammation, and an exclusion of the thinnest and most moveable parts of the blood; and therefore the secretion of the spirits, and the free course of them thro' the substance of the encephalon and nerves, will be impeded; and from hence a delirium, coma, convulsions, and the like, so frequently attend an ardent fever. The most intense heat about the vital organs, and the very rapid motion of the thick blood, and great dryness, denote the lungs to be in danger, lest by the rupture of some vessels a fatal spitting of blood may ensue, or by the impervious blood impacted into the pulmo-

* Hippocrat. Prognostic. in initio. Charter. Tom. VIII. p. 584, 585.

pulmonary vessels the ardent fever may turn to a fatal peripneumony. But by what means nature aims at the cure of this disease, and by what passages she endeavours to extricate the morbid matter; at what time of the disease the discharge of it may be safely and certainly effected, and by what signs these efforts of nature may be foreseen; and lastly, in what manner we may know whether the future exit thereof will be salutary or fatal; each of these particulars have been already delivered. It therefore appears, that every thing belonging to the prognosis may be derived from what has been hitherto said.

Some are indeed offended, that we should say an inflammation attends throughout the whole body in an ardent fever; because they believe that then the circulation must cease, as none of the vessels would be pervious. But, as appears from what was said under the heads of Obstruction and Inflammation, an inflammation may arise, when the orifices of the smaller vessels, being dilated, admit larger globules of the blood than are capable of passing through their extremities; which we then called an *error of place* and which may happen only from an excess in the circulatory motion, as we demonstrated at §. 100. Hence an inflammation may arise throughout the whole body, although the blood continues to flow through the greatest number, if not through all the sanguiferous arteries. But that such an inflammation attends in an ardent fever, we are taught from a redness of the face, and frequently of the whole skin, which sometimes continues even after death. The inspection of bodies dying of this fever, demonstrates the cortical substance of the brain (in which naturally there is no red blood to be found) to appear in this case all over red, as if it was filled by art with some injection. Also from hence appears the reason why such a great heat attends, even though such a great number of the smaller vessels are rendered impervious; for the red blood thickened by the loss of its most fluid parts, continues to be moved with a great velocity in the larger sanguiferous arteries; and that the most intense heat must arise from these causes,

es, was demonstrated before, where we treated of Heat in Fevers.

. 743. **T**HE cure of this fever requires a pure cool air to be frequently renewed; the bed-clothes to be not in the least oppressing or over-loading to the body, either by their heat or weight; the patient to sit often in an erect posture; the drink to be plentiful, mild, obtunding, subacid, watery, and drank warm; the food or nourishment to be light and farinaceous, made up from barley, oats, and subacid fruits; bleeding to be performed in the beginning of the disease, if called for by the appearance of a plethora, by the signs of a particular inflammation, by an intolerable heat, by too great a rarefaction, by the necessity of a revulsion, or by urgent symptoms not easy to be otherwise subdued; the use of mild, diluent, relaxing, antiphlogistic, and cooling clysters to be often repeated, according as may be found necessary from the violence of the heat, dryness of the bowels, or the necessity of making a revulsion; the whole body to be moistened by the breathing a temperate air, replenished with the vapours of warm water through the nose, by washing the mouth and throat, bathing the hands and feet in water just warm, fomenting with sponges dipped in warm water, and applied to parts where the greatest number of vessels lie most exposed to their contact; the use of mild watery medicines of a sharp agreeable taste, with nitre, and such things as gently loosen the bowels, supplying matter for the urine, and affording a vehicle for the sweat, but without any great acrimony; and relaxing the contracted fibres, and resolving inspissated humours, particularly

larly diluting and moderating the acrimony of the latter.

From what has been hitherto said, it appears that a most intense heat attends in an ardent fever, dissipating the most fluid part of the humours, and inspissating the rest, causing a dryness of the whole body, and a degeneration of the humours into a putrid state; it is therefore evident, that the cure requires the too great heat to be moderated, the dissipated fluids to be restored, and such of them to be dissolved and attenuated as incline to concretion, to moisten the whole body, and to make use of such things as greatly resist all putrefaction. Hence the cure requires

A pure cool air to be frequently renewed.] There is sometimes so great a heat observed about the vital viscera in an ardent fever, that the inspired air is in a manner burnt up, as we observed before at §. 739. And from so great a heat there is danger lest the blood should be coagulated, so as to hesitate or stagnate in the smallest pulmonary arteries, whence frequently an ardent fever suddenly terminates in a fatal peripneumony; hence there is apparently a necessity for an agreeable coolness of the air to temperate this heat. But since in such patients there is continually a sort of putrid exhalations escaping from the body, so as to be offensive even to the people who attend upon those patients; therefore the air of the apartment in which they lie, will be in a little time filled and rendered foul with those vapours: hence a frequent renewal of it becomes necessary; for unless that is done, the miserable patient is obliged to be continually breathing such infected air, to his great damage. See what has been said before in the comment to §. 698, concerning the pernicious consequences arising from the heat of the bed and confined air in acute diseases.

The bed-clothes not to be in the least suffocating and over-loading to the body.] When we endeavour to secure the body from the winter's cold, we defend it well with clothes, so that by confining it in a bath of its own vapours we grow warm. If therefore the
same

the same thing takes place in an ardent fever, the very intense heat will be farther increased, and at the same time all those ill accidents will follow which are known to arise in this disease from a confined air not renewed. Hence Celsus^y orders, in the cure of an ardent fever, (as we said at §. 698.), “That the patient be kept in a large chamber, where he may breathe much pure air; nor should he be suffocated with much clothes, but only be covered over very lightly.” The same helps are also made the principal in ardent fevers by Aëtius. “The patient should lie in cool open places pervaded by a pure air; the bed-clothes should be light and soft, and often renewed; his bed-gown or wrapper should be thin, often changed, and always clean; the bed should be very large, that the heated limbs may be transferred sometimes to one place, sometimes to another; and the stagnant air should be put in motion by a fan^z.” But afterwards physicians departed from these directions of the ancients; unhappily entertaining an opinion, that fevers ought to be cured by sweats even in the beginning, forced by the weight of bed-clothes and hot medicines. But how dangerous it is to attempt this method, unless the matter and cause of the disease are so thin and moveable that they may be thus dissipated from the body, has been said before §. 594, n^o 2. §. 715, &c. Nor is this error new in the cure of fevers: for Celsus complains of it in his time, by saying, where he treats of promoting a sweat after the end, or at least after the decline, of the fever; *But for this purpose the patient ought to keep his arms under the bed-clothes, which should be moderately thick; and with the same, the legs and feet should be also well covered: but from which weight of bed-clothes most patients, in the height of their fever, more especially when it is of the ardent kind, find themselves greatly disordered*^a. It will be likewise of use to render the patients less hot, by laying them upon a couch

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^y Lib. iii. cap. 7. p. 134. ^z Tetrabibl. 2. ferm. i. cap. 78. p. 253.

^a Hujus autem rei causa continere æger sub veste satis multa manus decurrit, eademque crura, pedesque contingere: qua mole plerique ægros in hoc impetu febris, potissimeque ubi ardens ea est, male habent. Cels. lib. iii. cap. 6. p. 130.

or quilt rather than upon a feather-bed. But in what manner an agreeable coolness of the air may be procured, was said before at §. 605, n^o 2.

The patient to sit up often in an erect posture.] How much use it is of towards abating the too great violence of the fever, for the patient to sit up out of his bed, every day, for a short time, with an erect posture in a chair, has been said before in the comment to §. 610. By the same means also a delirium or ravings may be either avoided, or abated if already present; because in an horizontal posture of the body the blood flows with a greater quantity and impetus towards the head. Sydenham^b confided so much in this method of relieving the patient, that in the small-pox, when they seemed to be almost in the agonies of death, from the too great violence of the fever, he placed all his hopes in this only; and he assures us, that by this means he delivered many from the jaws of death. Nor is there much danger to be feared, although the bodies of such patients are exposed not much covered to a moderately cool air; as he proves by a wonderful case. For a young man in the flower of his age lay ill of the small-pox in the midst of the summer, soon after the eruption of which he was taken with a frenzy: but while the nurse, who had the care of him, was gone into the city, the patient was judged by those who were present to be dying; and after a while they laid out the supposed dead body upon a table, covered only with a sheet. When the nurse returned, upon lifting up the sheet, she discovered some obscure signs of life, and therefore caused the body to be laid again into the bed; and after some days the patient, who had been laid out, perfectly recovered, though his body had been exposed naked to the air for so long a time.

The drink to be plentiful, mild, obtunding, subacid, watery, and drank warm.] Namely, to restore the exhausted aqueous parts of the blood. Unextinguishable thirst, which constantly attends an ardent fever, as long the patient is not delirious, plainly calls for plenty of drink, as does also the great dryness of the whole

whole body. But since by the fever itself the humours tend to a greater acrimony, it is required at the same time for the drink to be mild and obtunding, and either acid or at least spontaneously inclined to acidity, in order to oppose the putrid degeneration of the humours, which is always much to be feared in an ardent fever. Hence decoctions of oats, barley, rice, &c. and emulsions prepared of these and of the mealy seeds, with the acid juices of vegetables, crude, or prepared by fermentation, as vinegar, wine, &c. diluted with too much water as to prevent them from doing any mischief by their stimulus, and the jellies or inspissated juices of the shops diluted in these decoctions, afford most pleasant and salutary drinks: and at the same time a great variety may be had in these, as the same drink does not please every one; and even in the same person afflicted with this fever, it frequently happens that he has a greater desire for one kind of drink than another at different times. This has been also remarked by Hippocrates^c, who therefore enumerates the several kinds of drinks in an ardent fever, though all of them have the properties before described. Thus he recommends a decoction of linseed, mead, pure water itself; a decoction of barley, either crude, or roasted, which last makes a drink almost like the coffee of the Asiatics; wine diluted with water, &c.

But it has been disputed, whether cold or hot drink is most useful in fevers, more especially as many passages in the ancient physicians teach us, that they greatly recommended cold drinks in an ardent fever, and that they endeavoured to extinguish by the cold the fiery heat of this disease. Thus Hippocrates says, in treating of these drinks: That *they produce many or various effects, sometimes provoking urine, at other times exciting stools, and in others both, or neither, but only a coolness, as if cold water was poured into a vessel of hot, or as if the vessel itself was exposed to cold*^d: and he afterwards

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orders.

^c De Morbis, lib. iii. cap. ultimo. Charter. Tom. VII. p. 594, 595.

^d Multos autem edunt effectus; alii liquidem mictionem provocant, alii alvi defectionem, alii utrumque, alii neutrum, sed tantum refrigerant, ut si quis in vas aquæ ferventis frigidam aquam infundat, aut vento frigido vas ipsum exponat. *Ibidem.*

orders many of the cooling drinks to be given, which he before describes. Even Galen^c acknowledges only two heads or intentions of cure; namely, that the bilious humours ought to be extinguished, or else perfectly evacuated. For the extinction of them, he recommends cold drink; by which, he says, he always was able to cure the ardent fever; and observes, that these cures were so numerous, that he could not recollect the number of them. Thus Celsus^f also observes, that some physicians used the drinking of cold water till the patient was full, for the cure of an ardent fever. But where there are the signs of a present inflammation, or where there is danger of a future one, it is sufficiently evident what bad consequences are to be feared if cold drink is taken into a body violently heated by a fever. See what has been said upon this subject in the comment to §. 640, n^o 1. For there it appears, that Galen never absolutely made use of cold drink in this disease, but when the humours were already perfectly concocted; and Celsus gives many cautions, not rashly to attempt this remedy in every case. Nay, the ancient physicians seem to have feared something bad in this practice of giving cold drink, more especially if it was taken in large draughts. Thus when Hippocrates^g recommends thin mead, boiled away to the consumption of half, he orders it to be drank cold indeed, but by degrees or in small quantities. And Aëtius^h gives us a whole chapter concerning the giving of cold water, where he enumerates the mischievous consequences which sometimes happen from it, and delivers the cautions to be observed in the use of it. He is unwilling that it should be given, in the beginning or increase of fevers; and observes, that it is then chiefly useful, when, the humours being previously attenuated, the nature of the solid parts is strengthened by the cold drink; and thus by a very just expression he explains himself, that cold drinks are only useful when there is a great tenuity of the humours.

^c Comment. 4. in Hippocrat. de Viſtu in Morbis Acutis. Charter. Tom. XI. p. 124. ^f Lib. iii. cap. 7. p. 135. ^g De Morbis, lib. iii. cap. ultimo. Charter. Tom. VII. p. 594. ^h Tetrabibl. 2. term. 1. cap. 72. p. 249. & in editione Græca, p. 84. verſa.

humours. Moreover, the same authorⁱ, treating of an ardent fever, observes, that the continual use of cold epithems applied to the breast and stomach ought to be avoided; and that the application of warm epithems to the same part seems rather preferable. He sometimes orders cold water to be drank to the quantity of a spoonful or two after meals; and rather chuses, in the general, to have the drink about as warm as milk from the cow, (for thus Foësius proves^k, that the term γαλακτώδης, *like milk*, ought to be translated.) Moreover, he observes again, that when the time occurs in which it may be proper to exhibit cold drinks in an ardent fever, the danger of the least disorder at hand may be a sufficient impediment to the use of it: and in that case he rather chuses to begin with the use of *aqua fracta*, as he calls it; that is to say, when one part of hot water is added to five of cold. Moreover, towards the end of the chapter he observes, that some physicians ignorant of the method, but endeavouring to imitate what they had seen done by him, had no success, but the events turned out fatal.

From all which I think it is evident, that the ancient physicians have not so absolutely recommended cold drink in ardent fevers, as some would have us believe; and at the same time it appears, when and under what cautions it may be useful. But in the meantime the giving warm drink can never be mischievous, as the vessels are that way more relaxed, and the fluids better diluted; nor is there any danger from a constriction of the solid parts, or a coagulation of the humours, both which are to be feared from an imprudent use of cold drink. Nor is it any objection, that coldness of the air is recommended in this fever; for the air being much rarer than water, instantly grows warm as soon as it is inspired: at the same time no prudent person will admit the freezing air of the winter-time to be applied to the body of a patient heated in an ardent fever, but they will only temperate the too great heat of the air by moderate coolness.

The food and nourishment to be light and farinaceous, made up from barley, oats, and subacid fruits.] The same things which were recommended for the drinks; and which differ only, in having the denomination of food, by a little greater strength or consistence. Hippocrates gave only his ptisan, or the juice of ptisan, or cream, in these fevers, thinner or stronger in proportion to the time and violence of the disease; as we see in his book, *De victu in morbis acutis*, and in several places of his works. See what has been said in the commentaries to §. 599, 600, 601, 602; where we took notice of every thing relating to the quality and quantity of the food, and of the time proper for it to be given in.

Bleeding in the beginning of the disease, &c.] What use phlebotomy is of to diminish the too great violence of a fever, has been demonstrated before in the comment to §. 610. and therefore this evacuation seems always to be useful in an ardent fever, where a burning heat attends, and is usually accompanied with the most violent symptoms. But in the mean time great caution is necessary in the use of it, since bleeding may be sometimes very prejudicial. For when the blood begins to be impervious, and to hesitate in the smallest vessels of the vital viscera, there is indeed a burning heat about the præcordia, but at the same time a coldness attends in the extremities; whence we know, that then only a small quantity of blood is propelled to the extremities, while almost the entire mass is collected in the arterial system. If therefore, in such a case, a vein is opened, the very little blood will be removed which is able to pass from the arteries into the veins, and by which only at that time life is supported; and therefore there will be the greatest danger that blood-letting will rather occasion the death than the recovery of the patient. From hence it is evident, why blood-letting is chiefly useful in the beginning of a disease, before the thinnest parts have been dissipated, and while it still continues pervious through the vessels; for then, by removing the grossest parts of the blood, it makes way for and procures a
more

more easy and intimate mixture of the diluent and attenuating medicines, and happily prevents any future inflammation. If now the patient had a plethora before the fever, which may be known by the signs enumerated at §. 106. there will be still a greater necessity for bleeding; and this more especially, if at the same time too great a rarefaction from the intense heat of the fever occasion the effects of the plethora to take place. (See §. 106. s.) But as the opening of a vein is the most efficacious remedy for the cure of an inflammation, as we affirmed in the history of that disease; it is sufficiently evident, that this evacuation is necessary, when there are the signs attending of a partial inflammation, more especially about the head or thorax, whence a fatal frenzy or peripneumony might ensue in a little time; for unless such an inflammation is suddenly relieved, it will soon terminate in a gangrene: But since the too great velocity of the circulation may be lessened by bleeding from a vein (see §. 691.) and as it likewise lessens the density of the blood (see §. 692.) together with the mass or weight of it to be moved (see §. 693.) all which are the most powerful causes of heat in fevers; it is sufficiently evident from thence, that intolerable heat indicates the necessity of bleeding in an ardent fever. But as it is often necessary to divert the violence of the fever as much as possible from the head; in this case blood-letting may be performed in the foot to advantage. For when a vein is opened, the arteries which discharge themselves into that vessel will more easily evacuate their contained blood, and therefore there will be a less resistance made to the blood impelled into those arteries; and thus a revulsion will be obtained from the superior part of the body. See what has been said upon such things as make a revulsion of the impetus of the blood upon other parts at §. 396, n° 4.

From all which it is evident, that blood-letting in the beginning of ardent fevers is extremely useful; but that it is not always so useful in the rest of the progress of the disease, but only when the forementioned inflammation of the brain or lungs is threatened; having

ing always a regard to the patient's age, strength, and the season of the year. But blood-letting is dangerous if the patient's strength is already depressed, and not from too great a fulness and rarefaction as the cause; as also if the extremities continue cold a long time, as we observed before. Hence Hippocrates remarks, *That one should open a vein in acute diseases, if the disorder appears violent, if the patient is in the vigour of his age, and the strength at that time is also considerable*¹. Almost the like is to be met with in Celsus, when he says, *Blood-letting is therefore required when the fever is violent, and the body looks red, or the veins swell and appear full*^m.

But that the use of venæsection was not so universal among the ancient physicians for the cure of an ardent fever, may be collected from hence; that Celsusⁿ makes not any mention of it, where he treats of the cure of an ardent fever. Nor does Aëtius^o mention it, although he recommends bleeding in the cure of continual fevers, both simple and putrid. Neither do we meet with any thing in Ægineta^p concerning the opening of a vein in the cure of an ardent fever. But Aretæus^q, treating of the cure of a syncope, the beginning of which he pronounced an ardent fever, does then more especially recommend venæsection, *ubi præ multitudine syncopa fit, et inflammatio aliqua insignis in præcordiis aut jecinore apparet*; “when the syncope proceeds from too great a quantity, and some considerable inflammation appears about the liver or præcordia.” And soon after he subjoins, *Quod multo minus sanguinis, quam in aliis occasionibus, evacuandum esse, quia vel minimus hic commissus error ad interitum ducit*; “That much less blood ought to be evacuated than upon other occasions, because the least error committed in this respect may be of fatal consequence.

But

¹ In acutis morbis venam secabis, si morbus vehemens appareat, et qui ægrotant in ætatis vigore fuerint, et robur ipsis adfuerit. *De Viâtu Acutor. Charter. Tom. XI. p. 127.*

^m Ergo vehemens febris, ubi rubet corpus, plenæque venæ tument, sanguinis detractionem requirit. *Lib. iii. cap. 10. p. 78.*

ⁿ *Lib. iii. cap. 7. p. 134. &c.*

^o *Tetrabibl. 2. serm. 1. cap. 78. p. 253, &c.*

^p *Lib. ii.*

cap. 30.

^q *De Curat. Morb. Acut. lib. ii. cap. 3. p. 100.*

But if there are also certain signs persuading that venæsection will be prejudicial, or at least dangerous; and in the mean time there are urgent symptoms not easily to be subdued by any other remedy, as, for example, a pleuritic pain, or a violent burning heat in the head, a suffocating quinsy, &c. in that case the lancet may be used, but in the presence of the physician, and the vein may be closed as soon as that symptom is relieved; being careful at the same time to pre-advise the patient's friends of the great danger which attends that remedy, but that inevitable death is at hand unless it be tried. Celsus has a very just passage relating to this point, where he treats of venæsection: *But may so happen, that the disease may require what the dyscems but very ill capable of supporting: but if there appears no other relief, but the patient must perish unless bled even by a rash method; in that case, it is the part of a good physician to declare, that there are no hopes without blood-letting, and at the same time to intimate how much danger there is in that remedy itself; and then at length, if it is necessary, he may proceed to the use of the lancet. But in an affair of this nature, the physician ought not in the least to doubt or hesitate: for it is better to try a doubtful remedy, than none at all.*

The use of mild clysters, &c.] For these are of the greatest use, as the putrid fæces are thereby washed out from the large intestines where they are collected, and all these parts are fomented, and by that means a relaxation is made from the parts above. Besides this, the diluent antiphlogistic liquors received into the bowels, by relaxing and cleansing the small mouths of the meseraic veins, will be absorbed and mixed with the blood, which will by this means be well diluted and attenuated. But since clysters thrown into the bowels are immediately received into the veins, and,

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ut Fieri tamen potest, ut morbus quidem id desideret, corpus autem ex pati posse videatur: sed, si nullum tamen appareat aliud auxilium, periturusque sit, qui laborat, nisi temeraria quoque via fuerit adjutus, in hoc statu boni medici est ostendere, quam nulla spes sine sanguinis detractione sit; fateturque, quantus in hac ipsa re merus sit: et tum demum, exigatur, sanguinem mittere. De quo dubitare in ejusmodi re non oportet: satius enim est anceps auxilium experiri quam nullum. *Lib. ii. cap.*

in part at least, conveyed to the sinus of the vena portarum, and from thence propelled throughout the whole substance of the liver, they may have a great influence in removing obstructions or inflammations in the vessels of that viscus; inasmuch as the remedies thus pass immediately into the parts affected, undergoing little or no alteration from the powers of the body. And on account of the burning heat which is perceived about the præcordia in an ardent fever, there is just reason to fear lest such disorders should take place in the liver. But as the whole design here is to dilute and relax these passages of the body, therefore the clysters are made only such as are the most emolient; for if they were more acrid, they would be soon followed with a tenesmus, and be thrown out again from the body by stool. Water only, with oxymel and nitre, will suffice for this purpose; or the same things may be diluted in a decoction of mallows, marsh-mallows, barley, oats, or the like. These ought to be applied three or four times in a day, or oftener; and to be retained in the body as long as they conveniently can: but the use of them must be persisted in as long as any great heat or dryness continues throughout the whole body. But when the tongue, fauces, eyes, and skin, begin to appear moist, and the violence of the fever with the heat abate, then they are to be laid aside, to avoid weakening the body too much, or to prevent the fever from being so dull as might disenable it to subdue, move, and expel, the morbid cause. See what has been said concerning the use of these in the comment to §. 610. where we treated of lessening the too great violence of the fever. We know that Hippocrates relied greatly upon the use of clysters in acute diseases; for after saying that in acute fevers a vein ought to be opened if the disease is violent, he adds, *But if the powers appear weak, or if you have taken away too great a quantity of blood, a clyster ought to be thrown into the intestines every third day only, until the patient is out of danger*^s. From whence it

^s At si imbecilliores appareant, hæc si plus sanguinis detraxeris, clysmo alvino tertio quoque die utendum, donec in tuto æger fuerit. *De Vitis Acut. Charter. Tom. XI. p. 129.*

is evident, that Hippocrates expected the same effects from clysters as from blood-letting; and that in the weaker patients, or such as had been reduced by large blood-letting, he used clysters only at long intervals. But of what use these are in deriving the impetus of the blood from the superior parts, and therefore how serviceable they are when a delirium or frenzy attend, or to prevent them when they are feared, we are informed by Celsus, where he treats of clysters, saying, *And almost in the same manner as the morbid matter is thus removed, the superior parts being relieved, the disease itself also abates*†.

[The whole body to be moistened, &c.] For, as we have observed before, those perish with dryness who are seized of an ardent fever: hence all the endeavours of art are to be used to remove the present, and prevent the future, dryness. Therefore the internal parts of the body are to be moistened with plentiful drinking, and with emollient clysters; the lungs by breathing moist air; the internal parts of the mouth, fauces, and nose, by gargles, and by drawing in the steams of warm water, whereby they are to be preserved from drought. But also the external surface of the body, which frequently appears so dry and rough in ardent fevers, ought frequently to be relieved: hence warm bathing of the feet, more especially if the vapours of the water are permitted to come to the lower parts of the body uncovered, is of the greatest use; the hands are to be frequently dipped or washed in water every day; sponges distended with warm water are to be frequently applied under the arm-pits, behind the ears, and in the groins; that the water applied in all these parts may enter the veins, mix with the blood rendered almost impervious from the loss of its fluids parts, and restore its diluent vehicle. At the same time also, by these means, the whole surface of the body is rendered very perspirable, so that by this way those humours may be expelled from the body, which being retained would have been mischievous. The ancient physicians

† Fereque eo modo dempta materia, superioribus partibus levatis, morbum ipsum mollit. *Lib. ii. cap. 12. p. 86.*

physicians took a great deal of pains in these particulars: for they strewed the floor with leaves of vines, myrtles, and roses, &c. and frequently sprinkled those leaves with water; they ordered the mouth to be frequently washed and gargled; they applied epithems to the breast and stomach, and linen cloths moistened with a mixture of warm oil and water, or else they suffered the mixture to drop down upon the breast, ^u &c. And by all these means put in practice they mitigated the worst symptoms which usually attend an ardent fever; such as dryness of the tongue, unextinguishable thirst, intolerable anxiety, short cough, shrillness of voice, &c.

Nor was this all; for by the same means the internal and external parts of the body were disposed to make critical evacuations by those ways which usually terminate an ardent fever. For a bleeding from the nose, which is so salutary in this fever, is best procured by softening and relaxing the membranes and vessels which line the internal parts of the nose by the vapours of the warm water; by relaxing the whole skin, the body is disposed to critical sweats; the lungs, softened and moistened, will more easily evacuate the morbid matter by a thick spitting; and those emunctories in the body which are placed behind the ears, in the arm-pits and groins, being continually relaxed with warm fomentations, will more easily admit the morbid matter to be deposited there by a critical translocation, &c. From whence it is evident, of how great use moistening of the whole body may be in the cure of an ardent fever.

The use of mild watery medicines, with nitre, &c.] The ancient physicians seem to have given themselves little concern about medicines; and no wonder, since what they administered under the title of food and drink, performed the office of medicines. Hence Hippocrates seems to have given hardly any thing but mead, oxycrate, or oxymel, &c. and these he even gave to his patients for the common drink. Thus also there is little or no mention made of medicines in Celsus, Aëtius, and others. But if what has been said concerning

^u Aetii Tetrabibl. lib. ii. ferm. i. cap. 78. p. 253, 254.

erning food and drink proper for people in ardent fevers be considered, it will evidently appear, that they have all the same qualities which are necessary in medicines. For they are all watery, mild, obtunding, and subacid: and the thing is the same whether a decoction of barley, oats, or the like, mixed with the most pleasant acid juices or syrups, be given under the title of a common drink, or under the denomination of a medicine. But both the patient and his friends would accuse the physician of negligence, if he neglected to order medicines from the shop of the apothecary in so violent a disease; it is therefore better to exhibit such things under the title of medicines, as answer the same intention, of which a great variety may be tried. For all the syrups and inspissated juices prepared from subacid fruits, diluted with distilled waters, wherein there is no hot spiciness, such, for example, as those distilled from baum, elder-flowers, and the like; or dissolved in the decoctions of vipers-grass, of common grass, or of goat's-beard, burdock, barley, oats, &c. used as a vehicle to the same juices; are extremely salutary and pleasant, both as drinks and medicines. The like may be also prepared from cherries, strawberries, mulberries, raspberries, currants, &c. when they are fresh gathered in the summer-time, slightly bruised, and infused in a scalding decoction of barley or the like, and the strained liquor afterwards sweetened with sugar or honey. To these nitre is added, as being the lightest of salts, the most easily changeable by the powers of the body, and one of the best resolvents of inflammatory thickness in the humours, while at the same time it does not too much increase the motion of the blood by a rigid stimulus, see §. 135, n^o 2. If half a dram, or a whole one, of this salt, be diluted in each pound of these decoctions, will suffice; for if given in a larger quantity, it may increase the motion of the humours, which is already too great, by its saline stimulus.

It is also proper to all these medicines to gently loosen the bowels; which is always of service to prevent the putrid fæces from staying too long in the intestines.

stines: and by the quantlty of water with which they abound, they supply matter for the urine; and by that means procure an expulsion by the urinary passages of the saline and oily parts of the blood, rendered more acrimonious by the increased motion or velocity of the circulation. By the same means there is likewise a suitable or mild vehicle afforded to the sweat; by which discharge, as we have already seen, an ardent fever is frequently terminated; namely, when the humours being dissolved, and the vessels relaxed, the sweat appears at a due time of the disease. For those medicines are dangerous, under whatever title they are cried up, which, being possessed of an acrid stimulus, are given to excite sweats, as we have often said and demonstrated before. Moreover, by the quantity of warm water, especially charged with the soft glutinous substances of barley, oats, or the like, the fibres contracted and rigid with drought are relaxed; the thickness of the humour is attenuated by the saponaceous juices and nitre; while at the same time all acrimony is weakened, partly by diluting, and partly by the opposite nature of the drinks themselves, the ingredients of which are all of them either acid or inclined to acidity; and we know that in an ardent fever the humours incline to an alkaline, putrid, or an oily rancid acrimony. The great number of medicines suitable for these intentions, gives sufficient opportunity for one but moderately versed in the materia medica, to please the patient by an agreeable variety adapted to his fancy.

But since an ardent fever is frequently terminated by an hæmorrhage at the nose, as we observed before at §. 741. and as this has been sometimes observed so profuse as to put the patient in great danger; it will therefore not be improper to add in this place, the means whereby an immoderate flux of blood from the nose may be suppressed. But the other critical evacuations which happen in an ardent fever, by vomiting, sweat, urine, or thick spitting, are seldom so profuse as to put the patient in danger; and besides, we have already treated of the manner how to suppress

o profuse vomiting, purging, or sweating, when we considered and treated of those among the symptoms of fevers: And therefore it may suffice for us in this place to speak only of suppressing an hæmorrhage from the nose.

The blood sometimes flows so impetuously from a rupture of the arteries in the nose, that in a little time several pounds have been discharged, insomuch that, practical observations testify, there has been danger of fainting and convulsions from the sudden and violent inanition. In the wonderful case which we mentioned at §. 741, when the hæmorrhage which Galen had predicted had discharged four pounds and a half of blood, he was obliged to suppress it. But among the remedies which serve this intention, many have commended venæsection, thereby to call off the impetus of the blood. But how little confidence can be placed in this, was said before in the comment to §. 219; and at the same time there is danger lest by opening a vein those disorders should be increased, which are feared as the consequences of the too great inanition, namely, when phlebotomy is used after much blood has been already lost. But when blood flows from the nose of young persons in the spring or summer-time, and we are acquainted that they had suffered profuse hæmorrhages of the like kind before, venæsection may then take place, in order to lessen the quantity and impetus of the blood. Of this nature seem to have been those cases, of which Galen^u testifies he had relieved a great many instantly from a bleeding at the nose, by opening a vein. For in the case last mentioned, he did not make use of it, but had recourse to other remedies. We read indeed in Hippocrates, That *venæsection sometimes removes convulsions when they are brought on by a profuse and violent flux from the nose*^w. But Galen^x rather chuses to have this passage understood (as he tells us in his

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comment

^u De curandi ratione per venæ sectionem cap. 11. Charter. Tom. X.

440.

^w Quæ ex naribus copiosa violenta multa fluxerint, ad convulsiones interdum deducunt: venæsectio solvit. *Prorrhæ. lib. i. Charter. Tom. VIII.*

798.

^x Ibidem.

comment upon it) to mean, that venæsection is a cure, when it is used before the hæmorrhage from the nose. Moreover, Hippocrates, in his Coan Prognostics, expresses this opinion in a different manner, by saying, *They who having a profuse flux from the nose suppressed by violence, being sometimes thrown into convulsions, are cured by venæsection*^y. For thus is discharged by venæsection that which was retained by an unseasonable suppression; whereas, in the former case, convulsions arising from too great inanition would be rather increased by venæsection. And hence Sydenham^z, who recommends blood-letting as useful to prevent or suppress an hæmorrhage from the nose in healthy people, has yet no good expectations from it to suppress a critical hæmorrhage from the nose in fevers^a.

For this purpose may conduce ligatures applied to the limbs, so as to compress the veins but not the arteries; since by this means the venous blood is prevented from returning in so great a quantity towards the heart; and thus much blood may be retained in the easily dilatable veins, and time may be given to the divided arteries to contract themselves by their own elastic force. Galen^b recommends, before other remedies, the application of large cupping-glasses to the hypochondria on the right side when the blood flows from the right nostril, and on the left when the blood flows from the nostril of the same side: for that after having tried in vain an erect posture of body, the drawing up of cold water mixed with vinegar by the nose, the application of cold sponges dipped in mead to the forehead, and the making ligatures upon the limbs, to moderate the too profuse hæmorrhage, he immediately relieved it by applying a cupping-glass to the right hypochondrium.

Sydenham^c assures us, that he often successfully allayed the too great violence of the blood by anodynes; and then by giving a purge he prevented the return of
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^y Quæ ex naribus larga (fluunt) vi suppressa, quandoque convulsione provocant; venæ sectio solvit. N^o 336. *ibid.* p. 870.

^z Sect. vi. cap. 7. p. 360. ^a *Ibid.* sect. i. cap. 4. p. 86. ^b De Prænotione, ad Posthumum, cap. 13. Charter. Tom. VIII. p. 851. ^c In locis modo citatis.

hæmorrhage after it was allayed: therefore, when this symptom attended, he gave purges in fevers soon-
than he otherwise used.

When the hæmorrhage has been so profuse, that the least delay has threatened danger, from the patient's body being already nearly exhausted, a very strong solution of vitriolum album has never yet failed me; namely, if a tent moistened in that liquor is introduced into the nose, taking care to thrust it up as far as possible. This may be done by some scraped lint dipped in a solution of the vitriol, and fastened round the end of a quill, upon which it is to be thrust up the nose, almost perpendicularly for the length of about half an inch more or less; and then, as if one endeavoured to thrust something from the nostrils into the fauces, the quill is to be prudently elevated, and passed directly upward, with the lint, as high as possible without injury; and, lastly, the nostrils being compressed, the quill is to be gently extracted, leaving the scraped lint behind. Unless the experiment be conducted with this caution, the solution of the vitriol seldom penetrates to the affected part. But the tent is to be left in the nose, until, after a day or two, it falls out spontaneously. The like method is recommended by Hippocrates, when he says, *One must first apply a piece of white vitriol, shaped like a finger, and compress the cartilages of the nose together on each side externally; and in the mean time to keep the bowels open with boiled asses milk; and, after shaving the head, to apply cold things if the season of the year is hot* ^d.

In the mean time care must be taken, not to suppress an hæmorrhage of the nose too early, or unseasonably, from an ill-grounded fear. As long as the pulse continues full, the heat extends to the extremities, and a red colour appears in the face and lips, there is no danger; but when the pulse begins to be unstable, a paleness appears in the countenance, and

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^d Chalcitidem digito prius efformatam apprime, et cartilagine utrinque foris comprime: alvumque lacte asinino cocto solve; et caput radene refrigerantia admove, si anni tempestas fuerit calida. *De Villi Aëther. Charter. Tom. XI. p. 182.*

the veins collapse, we know that the flux of blood ought to be then suppressed. It frequently happens, that a sudden and profuse hæmorrhage from the nose is followed with a fainting, and then the hæmorrhage ceases; nature performing at that time what was imitated by art in the cure of acute fevers, when, by blood-letting being put in practice till the patient faints, the fever is in a manner killed.

§. 744. **I**F to all this one joins what has been said in the general rules for the cure of acute fevers and their symptoms, and likewise what will follow hereafter of acute cases tending to the destruction of some particular viscus, he will plainly perceive all the remedies that are necessary for the cure of any ardent fever.

We have already enumerated, in the preceding aphorism, such things as are principally to be regarded in the cure of an Ardent Fever: The rest have been given under the cure of Fevers in General. For at what time of the disease aliments ought to be given, and what the quantity and strength of them ought to be, has been there explained at large; as also how the acrid irritating stimulus may be corrected or expelled, and by what remedies the lentor of the humours may be resolved; after what manner the matter of the disease may be best prepared for a concoction and crisis, and the ways lubricated, by which the matter of the disease, being subdued and rendered moveable, may procure itself a passage out from the body; concerning all which we have treated at large. But the principal symptoms which attend fevers, with the signs by which they are usually distinguished from each other, and the various denominations whereby they are sometimes called, together with their history and cure, have been likewise treated of; and therefore nothing seems necessary to be added further. But since inflammatory diseases of the viscera frequently arise from an ardent fever, which frequently require a particular treat-

treatment, more especially a frenzy or peripneumony; therefore we ought to add what we shall hereafter deliver concerning acute diseases, as they produce a particular inflammation of this or that viscus.

745. **M**OREOVER, the remaining particular acute fevers, which do but rarely occur, may be understood from what has been hitherto said, or else they may be referred to some of the particular symptoms, or they may be considered as the effects of other acute diseases.

For in the first place we treated of those fevers which run through their whole course from the beginning to the end without any intermission, called *TROCHI*, and distinguished into *putrid* and *not putrid*; but when such a fever terminated within the space of twenty-four hours, it was called an *ephemera*. It is therefore evident, that all continual fevers may be reduced to these three classes. But if an inflammation of some viscus attends at the same time, it then belongs to some of the inflammatory diseases, concerning which we shall treat hereafter. But as an ardent fever is the worst kind of those which have no intermission, but only remarkable fits of increase and remission; it is evident, that from the cure of this ardent fever may be understood what ought to be done in other fevers of the like kind, which are not accompanied with so many and so severe symptoms. Moreover, these continual remitting fevers frequently arise from the fits of intermittents protracted, and doubled, one upon the back of the other; and when the violence of these fevers has been abated, they usually turn into true intermittents; and therefore what else relates to these fevers, may be taken from the history and cure of Intermittents.

But the rest of the different kinds of fevers to be met with in authors, are usually taken from some troublesome symptom attending; but concerning these we treated in the history of the Symptoms of Fevers.

Thus

Thus the Hickuping fevers, Sudatory fevers, Exanthematous fevers, &c. those called *Asodes* from a continual nausea and anxiety, and *Epiala* from a continual rigor, &c. are all denominated from their symptoms: And so the whole difference necessary in their cure from that of other fevers arises from the symptom from whence they derive their name. But when a particular acute fever is accompanied with some inflammatory disease, or follows from the disease as the cause; as, for example, when, in a pleurisy coming to suppuration, a fever is kindled from the confined matter; it is evident enough, that the cure must depend upon a knowledge of that disease.

It is therefore evident, that nothing remains to complete the History and Cure of Fevers, than for us to add something concerning those Fevers which are termed *Intermitting*.

OF INTERMITTING FEVERS.

§. 746. **T**HE definition of an intermitting fever was before given (§. 727.); the *diagnosis* of it is self-evident; and the *distinction* of it into various classes is easy, inasmuch as it depends only upon the different times of the attacks or invasions. But sometimes an exquisite septenary intermittent happens, as I have myself seen.

Those fevers which abate of their violence at times, in such a manner that there is a perfect absence of the fever betwixt the two fits, are called *intermittents*; as we said before at §. 727; and therefore in this respect the diagnosis of them, whereby they are distinguished from all other fevers, is very easy. But it is evident enough, that the diagnosis of this fever requires the physician to be acquainted by observation with the two fits and the intermediate time betwixt; before he can be certain of what kind it is. For it is much.

much more difficult at the first invasion of the fit, to determine whether it will be an intermittent, or of what kind, whether a quotidian, tertian, or quartan : upon this subject therefore we shall speak more particularly, after having first enumerated the different classes of intermitting fevers.

The difference of the time which intervenes betwixt each paroxysm, makes the different classes of these fevers. For if the fever returns every day with a perfect intermission or absence of the fever betwixt the two fits, it is termed a *quotidian*. If the fever invades the first day, and leaves the patient perfectly free on the second, returning again on the third day, it is called *tertian*; the calculation being made from the beginning of one fit to the beginning of the next^a. But if the second paroxysm falls out on the fourth day from the beginning of the disease, it is called a *quartan*; if on the fifth day, a *quintan*; and so of the rest, betwixt whose paroxysms longer intervals have been observed. This ought more particularly to be remarked, because the common people, among us at least, often confound the names of these fevers, by calling a quartan a tertian, because they see the patient free from the fever for two days; and then on the day following, which they call the third, it returns again. For the same reason they call a tertian fever that which invades every other day. But is customary with physicians to estimate this and all other diseases from their first invasion; and hence the reason is evident, of these names which are usually given to intermitting fevers.

It is well known to every one, that quotidian, tertian, and quartan fevers, frequently occur; but those intermittents which have a longer interval betwixt each paroxysm are very rare. Yet Hippocrates^b mentions fevers returning on the fifth, seventh, and ninth day; and the celebrated author of these aphorisms allures us in the present one, that he had seen an exquisite septenary intermittent. I had myself once an
 oppor-

^a Sydenham, sect. i. cap. 5. p. 96.
 tom. IX. p. 86.

^b Epidem. lib. i. Charter.

opportunity of seeing a quintan intermitting fever arise from a quartan; but after four fits, this fever went off spontaneously. Schultzius^f also observed a fever returning every eighth day at the same hour, and with the same symptoms, for five times successively; but the sixth time the fit (which was the last) fell out upon the fifth day from the last paroxysm, anticipating the usual time of the exacerbation about three hours. But the same author remarks, that this fever terminated in health, partly by a sweat, and partly by a copious discharge of urine, almost without the use of medicines. But Amatus Lusitanus^g saw a fever of this kind, of a much longer continuance, in a Jewish youth, which continued from the beginning of the winter to the middle of the spring, and that with very evident fits, lasting for near fifteen hours. But after the fit was over, the patient found himself perfectly well. More such cases occur among the writers of observations; from whence it appears, that sometimes intermitting fevers of much longer periods are observed. But the longest interval that we read of betwixt two paroxysms, takes up the space of a whole year. Antipater, the poet of Sydon, used to be taken with a fever every year upon one day, namely, his birth-day; and thereby he was wasted, though he acquired an old age tolerably long^h. Many such observations are collected together by Schenkiusⁱ. But these long intervals betwixt the paroxysms of intermitting fevers do not frequently happen, as we may collect from hence, that Galen^k testifies he never saw these long periods; and that he had only observed quintans, and even those obscure and doubtful. But Tulpius^l saw a very distinct quintan fever, which continued returning in due order for above eighteen months, without any manifest wasting of the body or loss of strength.

But as intermitting fevers differ from each other according to their fits or paroxysms, it is sufficiently evident,

^f Miscell. Curios. ann. 4, 5. p. 58. ^g Centur. Septim. Curat. 75. p. 767. ^h C. Plin. Secund. lib. vii. cap. 51. ⁱ Observat. Medic. lib. vi. p. 745, 746. ^k Comment. 3. in lib. i. Epidem. Charter. Tom. IX. p. 87. ^l Observat. Medic. lib. iii. cap. 52. p. 269, 270.

vident, that this distinction must be obvious and easy to every one. But Galen^m has more nearly contained or limited the diagnosis of these fevers, affirming that one might distinguish in the first fit of the approaching fever, to what class the intermittent belongs; he even ventures to say, That one who knows not how to distinguish immediately a tertian from a quartan on the first day, is no physician.

The signs of a *quotidian* fever are reckoned up by Galenⁿ as follows: That the heat is more moist, and joined with a kind of acrimony, which is not immediately perceived as soon as the hand is applied, until it has continued some time; the thirst is less, and there is a discharge of phlegmatic humours by vomit and stool; the whole body abounds with crude humours; the patient's age, habit, season of the year, or state of the weather, are usually too moist. Moreover, in a *quotidian* fever, there is never so great a heat perceived as in the height of the paroxysms of a tertian. A *tertian* fever he distinguishes^o by its beginning with a more severe rigor or cold fit than a *quotidian*, together with a kind of uneasy or painful sensation like pricking: the pulse more nearly resembles the natural, but in a little time it increases both in strength and magnitude: great thirst attends: and there is a great heat, but equally diffused even to the extremities; which heat at first greatly affects the hand of the physician touching, but soon after seems to be less than that of the hand: at length a sweat follows; bilious humours are discharged by vomiting, or by stool; and the urine is also discharged bilious. This diagnosis is confirmed, if the season of the year is hot; if the patient's habit is warm and bilious; and if labour, watchings, care, or fasting, have preceded. but he tells us, that it is proper to *quartans*^p, in their invasions, to have the pulse as if it was tied up and drawn inward, as we said before upon another occasion at . 576; nor is there that sense of pain or pricking attending

^m De Crisibus, lib. ii. cap. 4. Charter. Tom. VIII. p. 413, 414.

ⁿ Method. Med. ad Glaucon. lib. i. cap. 7. Charter. Tom. X. p. 351.

^o De Crisibus, lib. ii. cap. 5. Charter. Tom. VIII. p. 414.

^p Ibid. p. 411.

^p Ibidem.

tending in the cold fit of a quartan as in that of a tertian, but the patient perceives as if all the soft parts were bruised even to the bones. This diagnosis will be still more confirmed and apparent, if these fevers rage violently, and spread epidemically, about the time of autumn.

But although the forementioned signs are of great importance in the diagnosis of these fevers, and a skilful physician, more especially one well versed by long experience in practice, may from thence presage at what interval of time the fit will return again; yet in the mean time prudence directs us to be cautious in this respect, lest, being sometimes mistaken, the physician might expose both himself and the profession by a wrong presage. For it can be of no bad consequence to defer the diagnosis, until the second paroxysm puts the case out of doubt. But they who are the most largely versed in practice, may easily foretel from the known epidemical constitution, to what class of intermittents the fever belongs, of which they see the first fit.

Moreover, in intermitting fevers, it is to be observed, that the distinction is taken from the longer or shorter duration of the fit itself. For when the fit of a tertian terminates within the space of twelve hours, Galen^a calls it an *exquisite tertian*; but when the fit exceeds twelve hours, and the time of intermission is still longer than that, he calls it simply a *tertian*, without the addition of any title. But if the paroxysm runs out to so great a length as to exceed the interval or space of time in which the patient continues free from the fever, he then calls it an *extended* or *prolonged* tertian. Nor is this distinction useless, when certain presaging signs concur, proper to an exquisite tertian only, as will hereafter be made evident.

But when a new accession of the fever comes on upon the intermediate day betwixt the two paroxysms, it is then termed a *duplicated* or *triplicated* intermitting fever, &c. because then in reality there are so many fevers,

^a Comment. 3. in lib. i. Epidemicor. Charter. Tom. IX. p. 90, 91.
et Comment. 2. in lib. vi. Epidem. ibid. p. 409, 410.

fevers in number, as there are fits of accession following in order, attended with the usual symptoms, the same number and strength at the hour of invasion; and thus a double tertian, or a triple quartan, is distinguished from a quotidian fever. For in a double tertian, the fit on the first day answers to that which will attend on the third; but the accession of the second day is like that which will happen on the fourth; and the same order is observed in a triplicate quartan. But the fits of a quotidian fever are very much like each other. But yet Celsus^r seems to have neglected this distinction of a double tertian from a quotidian, as he numbers them together as varieties of quotidian fevers.

But it sometimes happens, though rarely, that this duplication of the fever does not fall out upon the intermediate day; as for example, when two distinct fits happen instead of one on the third day of a simple tertian, the two fits following immediately after each other, and in the mean time the fever is perfectly absent upon the second and fourth day. If now in such a case a new attack of the fever invades upon the intermediate day, it may be a triplicate tertian; which Galen^s assures us he has plainly observed. But how much all the symptoms must appear disturbed, when the fits of intermitting fevers are thus multiplied, and anticipate the usual hour of their invasion, as they often do, must be sufficiently evident to every one; and when they resemble the appearances of continual fevers, we shall declare hereafter at §. 748.

747. **I**T must however be observed in general, that intermitting fevers are either vernal, invading from February to August; or autumnal, which prevail from August to February again. This distinction is necessary to be made, on account of the various faces or appearances, symptoms, duration, going off, and cure,

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of

of this kind of fever; and inasmuch as one inter-mittent may drive away another.

Besides the forementioned distinctions, whereby inter-mittent fevers are distributed into various classes, there is still another general division obtains among them, which is taken from the time of the year wherein they invade. For, as will hereafter appear when we come to treat of Epidemical Diseases, there are principally two seasons of the year observed, in which considerable changes happen in diseases, namely, the spring and autumn, or at least the time which is nearest to either of these seasons. Sydenham ^t, by a careful observation of diseases, learnt, that intermitting fevers, as well as other epidemical diseases, begin to spread in the month of February or August; the former of these he called *vernal*, and the latter *autumnal*. But he observed those fevers which began in the month of February continued till they gave way to those of the autumn following; and, on the contrary, those of autumn gave way to such as happened in the spring-time following: so that, in the middle of the month of June or July, the number of vernal fevers greatly diminished, and at length they gradually vanished; and in like manner, in the month of January, it was observable that the autumnal fevers diminished: hence, to take notice of this by the way, the reason is evident why (*cæteris paribus*) the number of patients is less in the months of June and July; namely, because the vernal diseases then begin to decline, and autumnal diseases do not yet begin. But although there are some fevers which happen in the intermediate times betwixt spring and autumn, yet these are less frequent, and may be more commodiously reduced to vernal or autumnal, according as they are nearer to one or the other season. For Sydenham ^u has observed, that those fevers, when they invade epidemically, begin sometimes sooner; more especially the autumnal, which then begin to appear towards the end of June: but if the number of these autumnals is about to be small, they invade later,

^t Sect. i. cap. 5. p. 597.

^u Ibidem, p. 98, 103,

water, namely, about the month of August or the beginning of September; and I have even sometimes seen them appear still later, namely, the autumnal fevers towards the end of September. But Sydenham has observed, that these fevers are the more numerous as they begin sooner; whence he remarks, that, in the year 1661, he saw patients taken with quartan fevers towards the end of June, which afterwards spread very largely.

This distinction is necessary, inasmuch as though the fever bears the same denomination, and keeps the same periods, yet a great difference always occurs both in the symptoms and in the cure, according as the fever is either vernal or autumnal. Hence Sydenham doubted not, that these fevers differed from each other, even essentially in their own nature^w; and affirms, that nothing certain can be had in the prognosis or cure, without attending to this difference of fevers. Nor will this seem wonderful, if it be considered, that in the spring-time those thick and viscid humours begin to be dissolved, which were accumulated in the body during the winter's idleness; and therefore the season of the year conspires together with the fever speedily to dissolve the febrile matter; to which purpose likewise conduce the salutary juices of the young sprouting vegetables, which are then usually given either under the denomination of aliments or medicines. Weak cattle, which have been kept a long time in the stables, being put out to the meadows, are fairly purged, by the juices of the grass, from those humours which were accumulated in the winter, and in a little time they shine and look plump; and the milk, or whey, produced from such grass, affords a salutary remedy to mankind. But after the bodies of animals have been parched up by the summer-heats, and the most fluid parts of the humours dissipated, there is a greater tenacity produced in the juices, the bile becomes thicker and more acrid, and the temperature of the air becomes more unequal; whence people being in w^{inter} are often injured by the morning and evening

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colds;

^w Ibidem.

colds; and those who are impatient of heat, for want of sufficiently guarding their bodies with clothes, are from hence liable to many diseases. And at the same time the cold, continually increasing, frequently occasions relapses to those who are recovering from diseases. Hence the reason is evident, why autumnal fevers are of a much worse nature than the vernal, and more difficult to cure.

The various faces or conditions, symptoms, duration, going off, &c. make a considerable difference observable in these fevers. For vernal intermittents are always salutary, and seldom of long duration; and even though they be treated in an improper method, and in weak and old people, yet are scarce ever fatal*. But autumnal intermittents, on the contrary, when by the prolongation and reduplication of their paroxysms they put on the nature of continual fevers, (as we shall declare in the aphorism next following), are not without danger, and frequently prove fatal in those who are cacochymical or far advanced in years. And these fevers are often protracted to several months, and sometimes even hold the patient until the spring next following, as we frequently observe in autumnal quartans. But those very bad symptoms, a hardness of the belly, with a dropsical swelling, cachexy, &c. which frequently follow after autumnal intermittents, are seldom or never observed after such as are vernal. But they also differ no less in the cure: For in vernal fevers there is sometimes hardly any cure required, as they usually go off spontaneously, being left to themselves; but, in autumnal fevers, much more powerful endeavours of art are to be used, as we shall explain hereafter in the cure of these fevers. Thus also autumnal fevers are much more inclined to repeat the fit upon the intermediate day than the vernal; and again, the nausea, vomiting, anxiety, and other symptoms attending intermitting fevers, are observed to be much more severe in the autumnal. Moreover, quartans are usually the offspring of autumn, which are worse and more stubborn than other intermittents;

* Ibidem, p. 100.

ents; and autumnal tertians sometimes change into quartans, which never happens in vernal tertians^y. Hence Hippocrates^z says, that summer quartans are usually of short duration, but autumnal ones continue long: and in general he pronounces of all diseases, That they are universally the most acute in autumn, and the most fatal; but the spring is very salutary, and the least fatal^a.

It is therefore evident from what has been said, how great difference there is betwixt vernal and autumnal intermittents; even so opposite are they in their nature, that one drives away the other. Galen^b has observed a tertian not exquisite begin in autumn, and continue till the spring. Nor does this difference seem to depend only upon the warmth of the spring, whereby the bodies or such as languish under chronical diseases are so entirely recruited; but rather from a change in the epidemical disposition, which no longer favours autumnal diseases. For Sydenham has observed, That vernal tertians, by undue bleeding and purging, with a regimen badly adapted to the disease, have been protracted even to the time when autumnal intermittents usually invade; which time or season being very contrary to the nature of this vernal disease, immediately checks it^c. For the variableness of the autumnal season, and the greater inclemency of the air, are naturally inclined to favour diseases; and, therefore, for this reason, vernal tertians prolonged cannot well be expected to be cured.

748. **M**OREOVER, these intermitting fevers in the beginning of autumn frequently resemble very exactly the nature of such as are continual, from the length and reduplication of their fits; when at the same time their nature and cure are perfectly different.

Q 3

Celsus:

Sydenham, ibidem, p. 104. ^z Aphor. 25. sect. ii. Charter. m. IX. p. 68. ^a Aphor. 9. sect. iii. ibid. p. 98. ^b Method. l. ad Glaucon. lib. i. cap. 9. Charter. Tom. X. p. 353. ^c Sect. l. 5. p. 100.

Celsus has observed before us, That the accessions or fits in intermitting fevers are sometimes confounded together, in such a manner, that there is no possibility of remarking their times nor spaces of duration^a. From whence, as the patient is never found free from the fever, the disease is often mistaken by the unskillful for a continual fever, and treated with such remedies as are usually exhibited for inflammatory continual fevers. But when the fever has first had the true signs of an intermittent, and then by a prolongation or reduplication of the fits it turns into a continual fever, as Sydenham^b frequently observed to happen in a certain epidemical constitution after the third or fourth fit of intermittents, there is then no difficulty in discovering to what tribe the fever belongs. But this is much more difficult to know, when the fever has had no sensible intermission from the first appearance of the disease. In those years when intermitting fevers have been very numerous in this city of Leyden, I have seen several such cases, in which intermittents have lain concealed under the mask of continual fevers. But Sydenham gives us an express admonition on this subject: “ But it is to be observed, that it is a difficult
 “ matter at the first appearance of intermittents, espe-
 “ cially of those that are epidemic in *autumn*, to di-
 “ stinguish them exactly; because, at this time, they
 “ are accompanied with a continual fever; and for
 “ some time afterwards, unless great attention be gi-
 “ ven, nothing more than a remission can be discover-
 “ ed; but by degrees they perfectly intermit, and put
 “ on a form entirely agreeable to the season of the
 “ year^c.” But we know, that such a fever, though by the prolongation and multiplying of its fits it resembles one continual, ought nevertheless to be referred to the class of intermittents, according to the epidemical constitution; for at the same time there are also many more patients observed ill with double tertians, or even sometimes with triplicate quartans, where the intermissions are sufficiently evident. Besides, if in
 such

^a Lib. iii. cap. 4. p. 117.^b In Epistol. i. Responsor. p. 375.^c Sect. i. cap. 5. p. 104.

Such a fever there happens a sensible remission and exacerbation, we then know that it belongs neither to the class of synochi, nor to that of acute continual fevers; but to the class of continual remittents, which often arise from intermittents; as we said before at §. 738. But this degeneration of the intermitting into continual fevers, seems to arise chiefly from the heat of the air. For we know, (as we shall hereafter declare in the cure of Intermittents) that by the use of medicines too heating, intermitting fevers may be changed into such as are continual; and the same thing seems to take place here. For this kind of fever is hardly ever observed but in a constitution or season when intermittents invade epidemically. But it was said before, in the preceding aphorism, that then these begin sooner and appear in the month of July, while as yet there is a great heat in the air. But the nearer the season is to winter, the more genuine do the majority of intermittents appear; and the number of these continual fevers decrease: whence Sydenham expressly remarks, that he has observed these continual fevers in the beginning of intermittents.

But it is of great importance to make this distinction in the practice of physic, because neither bleeding nor other weakening remedies are useful in these fevers, which belong to the tribe of intermittents, tho' they put on the face of such as are continual. For they require the same method of cure with other intermittents, which are made much worse by such remedies; as will appear hereafter when we come to treat of their cure. Even Sydenham^d scrupled not to give the bark in such fevers, and with very good success; which yet in continual fevers is of no use.

§. 749. **THEY** begin with a yawning, stretching; a weariness, weakness, coldness, trembling, shivering, and paleness of the extreme parts: the respiration becomes very difficult; and the patient is oppressed with anxiety, sickness, vomiting,

vomiting, a quick, weak, and small pulse, and intense thirst. As these symptoms are more numerous and severe at the same time, the fever is so much the worse; and the subsequent heat about to follow, with the other symptoms, will be proportionably more violent: And this is the first degree of this fever, answering to the increase of continual fevers, and is much more dangerous than at other stages; the urine at this time is generally crude and thin. Upon opening the bodies of those who have died in this cold fit, or first stage of an intermitting fever, after difficulty of breathing, sighings, and aversion to move the body, I have found thick blood impacted into the lungs; and then the pulse was always small, quick, and irregular. Harv. exercit. anat. cap. 16.

We come now to consider the appearances with which intermitting fevers begin; how they afterwards increase; and after arriving at their greatest height, decrease; until they terminate in a perfect intermission or absence of the fever. But all these appearances, which will be described, are observed even in a person before in health, when the first fit comes on, or when he has escaped from preceding fits and seems to be perfectly well.

Almost the first sign that appears is that of yawning and stretching, whereby all the limbs are gently extended and moved, often with a certain sense of pleasure. Soon after follows a weariness and uneasiness of the whole body, with a great weakness; so that the body can hardly any longer support itself. At the same time the nails begin to look pale; and from this paleness of the nails patients afflicted with quartan fevers know very well that the fit is coming upon them. Soon after, the tip of the nose, and the fingers and toes, look pale; as do also the lips and corners of the eyes: and then a coldness begins to be perceived; and the whole body shakes as if cold water was thrown

ver it. Hence this first beginning of an intermitting
 ver is by Sydenham called the *cold* or *shaking fit*;
 which symptom he believed to arise from hence,
 That the febrile matter, which being not yet tur-
 gid was in some measure assimilated by the blood,
 becomes, at length, not only useless, but prejudi-
 cial to nature, raises a kind of violent motion in the
 mass, and endeavouring, as it were, to escape, causes
 a chillness and shaking; which shew how pernicious
 in its nature the febrile matter is to the body, in
 the same manner as purging draughts in weak sto-
 machs, or poison casually swallowed, immediately
 occasion a shivering, and other symptoms of the
 same kind^b." At the same time there attends, or
 soon after follows, a trembling of the whole body,
 beginning first with the lower jaw in many; which is
 swiftly agitated or drawn up and down alternately;
 and hence the teeth strike mutually against each other,
 and often with so great a force, that I have seen the
 teeth thus knocked out in an old man afflicted with a
 quartan, even though they seemed to be firm enough
 before the disease. Sometimes also this trembling is
 troublesome, and lasting, throughout the whole
 body, that the greatest weariness arises from those in-
 voluntary concussions of the muscles; and when the
 fit is over, so great a weakness and pain continues in
 all the limbs that the patient can scarce move them,
 even though a girl, having very moveable or irritable
 nerves, afflicted with an autumnal tertian, degenerating
 after some fits into a quartan. I have given the Peru-
 an bark in these disorders, when it might seem not to
 be sufficient; and to my surprise those enormous trem-
 ings have ceased; but the quartan has continued mo-
 derate the whole winter, and afterwards in the spring
 has gradually disappeared of its own accord. But
 sometimes such a coldness arises, more especially in
 old people afflicted with a quartan, that the limbs
 grow stiff and become perfectly immoveable, so that
 they can scarcely bend any joint.

But the generality of these symptoms teach us, that
 the

the free and equable distribution of the spirits through the nerves is at that time impeded and disturbed; as is evident from what has been said at §. 627, 660. concerning Trembling and Weakness in fevers. But at the same time also the vital functions are disturbed: for the coldness of the extremities, as we said before at §. 621. supposes a less attrition of the vessels and humours against each other, and consequently that the juices stagnate about the extremities; the heart will be therefore less contracted, less emptied; and consequently there will be a less influx of spirits from the cerebellum. But as the veins are contracted by cold, and pressed by the subsultus of the trembling muscles, their contained blood will be derived towards the right ventricle of the heart; and in the mean time the heart, being less powerfully contracted, cannot so easily empty itself, as at the same time there is a greater resistance in the arteries: whence it is evident, that the greatest part of the blood must be collected in the large veins and sinuses about the right ventricle of the heart, and in the lungs; and from hence the anxiety arises, (see §. 631.) and the patient endeavours by all the efforts of respiration to make a way for the blood through the lungs from the right to the left ventricle of the heart. But when the lungs are extremely full in their blood-vessels, they are more difficult to expand in their air-vessels, whence the respiration becomes very difficult. But the heart being irritated by the continual influx of blood urged through the lungs, and collected in a great quantity about the right side of the heart, will palpitate very swiftly: whence the pulse will be quick indeed, but weak and small at the same time, because only a small quantity of blood is expelled into the arteries, which is not sufficient to dilate them; concerning which we treated before in the comment to §. 576. But a nausea and vomiting almost constantly attend at this time, and therefore the natural functions are likewise disturbed. And whereas it was proved in the comment to §. 636, that an imperviousness of the humours is justly ranked among the causes of thirst in fevers, the reason is sufficiently evident, why

great

great thirst attends at this time of the fever; since the humours stagnate in the extremities, and the impetuous blood is accumulated about the heart and lungs. But all the symptoms before enumerated are rather served in intermitting than in continual fevers; for these last there is seldom or never so great a coldness, nor of so long a duration: and as the increase of continual fever, unless it is the most acute of all, is never so swift as an intermitting fever, all these symptoms very rarely occur in the beginning of an acute continual fever, or at least never so violent; whence even from these we may be able to distinguish an intermitting from a continual fever. And from hence Galen says, *That therefore those which invade with a rigor or cold fit, may be not improperly ranked among such as repeat their course*ⁱ. Yet it sometimes happens, that the first fit of an intermitting fever is slight, and therefore has not these symptoms so violent.

But, as we said at §. 3. the magnitude of every disease is in proportion to its recession from the natural state; whence it is sufficiently evident, that the intermitting fever is worse as the symptoms beforementioned are more violent and numerous. Moreover, it is constantly observed, that the more violent the coldness, paleness, trembling, &c. so much the more severe is the consequent heat, and the more violent the symptoms which usually attend the following stage of the fever, unless the patient is suffocated in the coldness. For that cause, whatever it may be, which excites the fit of an intermitting fever, when it begins to act, injures and disturbs the vital actions, with the lungs and respiration, and the heat which depends thereon; and therefore the more violent this cause, so much the greater endeavour must the remaining life exert to subdue and expel it from the body, or at least to render it inactive. But this endeavour of life acting upon the morbid cause, performs its effects by increasing the velocity of the circulation; hence the reason is evident,

ⁱ Quæ igitur cum rigore invadunt, non abs re ex earum numero esse, hæc circuitu quodam repetunt, duxeris. *Method. Med. ad Glaucon.* .i. cap. 5. *Charter. Tom. X. p. 349.*

evident, why so great a heat follows after such a violent cold fit in these fevers. Moreover, when, in the severity of the cold fit of the fever, the blood almost stagnates in the larger veins and sinuses about the right side of the heart, as also in the lungs, it is disposed to concretion; and, its thinnest parts only being expressed, those which remain behind are more closely compacted, and cohere more strongly together. Hence, when the resistances about the extremities of the vessels begin to diminish, the blood impelled by the heart passes through the arteries into the veins with a greater attrition; whence the heat will be increased (see §. 675.) till the imperviousness of the blood is dissolved, and, the proximate cause being either subdued or expelled, the blood returns to its former evenness of circulation.

But as intermitting fevers may be considered two ways, namely, as each paroxysm is taken by itself, or as they are all taken together for the same disease; it is sufficiently evident, that each fit has its beginning, increase, and height, in the same manner as we observed before of continual fevers at §. 590; and then, by comparing these together, the first degree of this intermitting fever will answer to that stage of continual fevers which is called their increase, and in which what remains of health is gradually diminished, and on the contrary those symptoms which depend on the disease are increased. But if all the fits of the intermitting fevers are considered together, then as long as the fits exceed that which preceded last in their continuance and in the number and violence of the symptoms, so long may the fever be said to be upon the increase.

But it is evident that this first degree of the fever is the most dangerous, if we consider the present symptoms, which demonstrate a considerable injury of the vital functions. For the blood, as we said before, is accumulated in the lungs, about the right side of the heart, only a small quantity of it passing through into the left ventricle, which, palpitating with a tremulous motion, cannot protrude it through the arteries, contracted

acted by the cold, to the extreme parts of the body, and from the arteries again into the veins, and from them into the heart again, which whole course is thus impeded and disturbed; but as life itself depends upon this course, as we said at §. 1. life is therefore evidently in danger at this time of the fever. It is indeed true, that the following stage of the fever removes these obstacles, and restores the humours to their due freedom of circulation; and therefore very few people die of the fits of intermitting fevers, in comparison of the great numbers which are seized: but in the mean time it is true, that the greatest danger attends in this cold, or first stage of the disease; and therefore such as are of these fevers, perish at that time. What has been here said is confirmed by the observations of the most eminent physicians. Thus Sydenham observes, "That those who die of intermitting fevers, if they perish in the fit, yield to fate generally in the first stage of it, viz. during the shaking or chill; for if they survive till the effervescence or hot fit comes, they escape at least for that time." But he observes in another place^k, that old people have sometimes perished in the rigor even of the first paroxysms. Thus Hollerius^l saw a woman extinguished in the cold fit, which happened in the beginning of the accession of a quartan fever. The same thing is also confirmed by Hoffman^m upon his own experience. Great weight is added to these observations, from what Harvyⁿ found in the bodies of those who expired in this first stage of intermitting fevers; namely, That, *in the beginning of a tertian fever, the morbid cause tending to the heart, is sometimes* stopped

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§. Sect. i. cap. 5. p. 94. ^k Ibid. p. 115. ^l In Coac. Hippoc. p. 302. ^m Medicin. Ration. System. T. m. IV. part. 1. p. 81.

In tertianæ febris principio morbilica causa cor petens, circa cor et pulmones quando immoratur, anhelosos, suspiriosos et ignavos facit, et principium aggravatur vitale, et sanguis in pulmones impingitur, et suffocatur, non transit (hoc ego ex dissectione illorum, qui in principio febris mortui sunt, expertus loquor); tunc semper pulsus frequentes, et vi, et quandoque inordinati sunt; ab adaucto vero calore, attenuata veria, apertis viis et transitu facto, incalescit universum corpus, pulsus fortiores fiunt et vehementiores, ingravescente paroxysmo febrili. De Cordis, cap. 16.

stopped there and about the lungs, and occasions shortness of breath, sighings, and an aversion to move; because the vital principle is oppressed, and the blood impacted into the lungs is thickened and concreted without passing through them (this I speak upon my own experience, in the dissection of those who have died in the beginning of the accession or fit of the fever); whereupon the pulse is always quick, small, and sometimes irregular: but when the matter is attenuated by the increased heat, the passage is opened, and a way made for the blood; the body grows hot throughout; and the pulse becomes larger and stronger, as the febrile or hot fit advances. For when the febrile heat follows after the cold, we know that then the passages are opened again for the blood to be propelled even to the extremities of the body; and therefore that all the obstacles are removed, whether arising from a contraction of the vessels, or an imperviousness of the humours; and that there then only remains an increased velocity of the circulation, which in these fevers is usually quieted in a little time, so that there is no danger of the patient's perishing in the hot fit of the fever. It is indeed true, that, in a plethoric person, the blood being rarefied by the heat of the fever, some of the vessels may be broke in the brain, lungs, &c. with a fatal event: but then it is sufficiently evident, that in this case it does not depend on the fever as the only cause; and that it cannot be ascribed to those symptoms which attend every intermitting fever concerning which only we hear treat.

But the urine discharged at this time of the intermitting fever is generally crude and thin, from the constriction of the vessels, a weakness of the force of the heart, and the frequent drinking of watery liquors whence the kidneys transmit only the thinnest and almost merely the watery parts of the blood. See also what has been said concerning the symptoms of the cold chill in fevers at §. 576, 577, 578.

§. 750. **T**HIS first stage or cold fit (§. 749.) is immediately followed by another beginning

beginning with a heat, redness, a strong, large, and more free respiration, less anxiety, a larger and stronger pulse, great thirst, and great pain in the head and limbs, the urine being generally red; and this stage answers to the acme or height of continual fevers.

After this first stage of the intermitting fever has continued some time, longer or shorter, according to the different nature of the fever, season of the year, age and habit of the patient, (see §. 575.) the coldness and trembling begin to lessen, and a heat gradually returns in the extreme parts of the body: at the same time the paleness disappears, and a redness returns; the respiration, which was before difficult, becomes more free; and at length, when the heat is increased, it is both strong and large: for the blood, which before almost stagnated about the heart and lungs, has now a free passage, but with a rapid motion, through them; whence an increased respiration is necessary, in order to transmit a larger quantity of blood through the lungs in the same space of time. But the anxiety which attended in the cold fit of the fever from the progress of the blood being obstructed from the heart (see §. 631.) is now lessened, as the obstacles or impediments decrease; and at the same time the pulse becomes larger and stronger, because the heart then propels its contained blood into the arteries, which are now pervious in their extremities. But the thirst as yet often remains intense, partly from the humours being not yet perfectly dissolved, and partly from the dryness of the tongue and mouth which usually attends the heat in fevers; and frequently also (as we shall see hereafter) from the putrid bilious humours collected in the first passages, which being put into motion, and rendered more acrid by the febrile heat, may excite the most intense thirst, see §. 636. But since the muscular parts were agitated by so many violent convulsions and tremblings preceding, it is no wonder if the limbs ache when the blood is now propelled through them with a considerable force and velocity. But as

the vessels are more distended by the febrile heat and increased velocity of the circulation, there is frequently a violent pain of the head attends at this time of the fever. But the urine appears higher coloured than in the cold fit, from the greater attrition of the vessels and humours against each other; and it generally appears red, more or less intensely coloured, according to the degree and violence of the fever, and quantity of the drink taken.

This stage of the intermitting fever, is by Sydenham^o called the time of its *ebullition* or *fermentation*, (but in what sense he would have us understand these terms, he tells us in another place^p,) namely, whereby nature is used to subdue, and expel from the body, the morbid matter as in other fevers. Now this stage of the intermitting fevers, corresponds to the height of acute fevers; because afterwards all the symptoms remit, and the fever gradually decreases. But it differs in this, that, in the height of *acute* fevers, nature encounters the greatest violence of the disease, almost upon equal terms, insomuch that the event is uncertain, since sometimes nature overcomes the disease, and sometimes is overcome by it, as we said before in the comment to §. 590. But, in *intermitting* fevers, we are certain that in this fit nature will prevail over the disease, since those who perish die in the cold fit or first stage, as we said before under the preceding aphorism.

§. 751. **A**T last there generally ensues a profuse sweating, with a remission of all the symptoms; the urine appears thick, and deposits a sediment like brick-dust; the patient falls into a sleep; and the fever goes perfectly off, leaving upon the patient a weakness and weariness.

We come now to the last stage of an intermitting fever, which Sydenham^q calls the time of *despumation*;

^o Sect. i. cap. 5. p. 94.

^p Sect. i. cap. 4. p. 58, 59.

^q Sect. i. cap. 5. p. 94.

n; observing that by this name he intends nothing more than an expulsion or separation of the febrile matter, already attenuated and subdued. But this expulsion seems chiefly to be performed by urine and sweat; for the greatest height of the fit is almost constantly followed with a sweat, and generally one that profuse and hot, expelled from the whole body. For, since great thirst attends both in the cold and hot fit of the fever, from the patient's plentiful drinking the blood will abound with a large quantity of thin juices; and as the velocity of the circulation is increased at the same time, and a free circulation is restored to the humours throughout all the vessels of the body during the hot fit, the aqueous parts of the blood will easily find themselves a passage through the small exhaling vessels of the skin, now hot and relaxed by the warmth of the bed. By this sweat the patient is commonly much relieved; and at the same time all the symptoms which attend the febrile heat diminish, and the patient becomes perfectly free from the fever. But vomiting sometimes attends in this as well as in the former stages; and by that discharge, or by a flux from the bowels, the febrile matter is in some measure expelled; but a sweat almost constantly closes the paroxysm of an intermitting fever. Galen has well remarked this, where he describes the course of an exquisite tertian, saying, *But now is the time for the patient to drink; and immediately after drinking, many warm vapours exhale from the skin of the whole body, being the fore-runner of a sweat; and a vomiting of bile supervenes, and a flux from the bowels downwards, and a bilious urine, &c. for the sweat which follows is hot and vaporous, almost as in the stove or warm bath. But the whole body sweats equally throughout, and the pulse appears as usual in healthy people under exercise, or in the hot bath, namely, quick, large, strong, and frequent.*

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Et jam bibendi tempus adest ægrotanti, et statim post potum plurimus vapor calidus per cutim exhalat, sudoris nuntius, bilisque supervenit vomitus, vel alvus deorsum prorumpit, et biliosum mejit, &c. supervenit enim sudor vaporosus et calidus, quemadmodum in balneo. Totum

But the urine discharged during the time of this sweat, or after the fit is over, frequently shews itself of a red colour when it is first discharged, being in a manner saponaceous and frothy throughout; and then, after having stood for some time, a sort of thin skin appears on the surface, and adheres to the sides of the containing vessel: but in the bottom of the vessel is deposited a large quantity of sediment, resembling in colour the powder of burnt bricks or armenian bole, from whence this sort of urine is commonly termed *lateritious*. But this kind of urine appears so frequently after the fits of intermitting fevers, that Sydenham more especially discovered them by this sign, when they sometimes lay concealed under the mask of other fevers. For he remarks, that sometimes it happened in a certain epidemical constitution, “ that the fits did not begin with
“ chilness and shivering, which were succeeded by a
“ fever; but the patient was seized with the symp-
“ toms of a true *apoplexy*, though in reality, how
“ nearly soever it resembled this disease, it was no-
“ thing more than the effect of the fever’s seizing the
“ head; as plainly appeared from other signs, as well
“ as the colour of the urine, which in *intermittents* is
“ mostly of a deep red (but not so red as in the *jaundice*),
“ and likewise lets fall a *lateritious* sediment [†]. And therefore when he saw such urine, he used no evacuations by bleeding, purging, or the like, which he knew to be against intermittents; but he waited till the fit went off spontaneously, and then attacked the fever by the Peruvian bark.

But it is to be observed, that the urine is not always discharged thus at this time of the fever; for after vernal intermittents, and especially exquisite tertians, whose fits do not extend beyond twelve hours, the urine is then often discharged of a pale reddish, or a yellowish colour, with a cloud or other matter suspended in it; and sometimes they have a light uniform and white sediment, which indeed is a good

presage,

tum vero corpus ipsis æqualiter sudat, talisque est pulsus, qualis sanorum in exercitationibus et balneis, velox scilicet, ac magnus ac vehemens et frequens. *De Crisibus, lib. ii. cap. 4. Charter, Tom. VIII. p. 412.*

[†] Epist. 1. Respons. p. 387.

refuge, as such fevers usually prove easy and short, Galen's remarks. And even in the first fits of autumnal intermittents such a red-coloured urine is not to be observed, but for the most part only when the fits are more than usually violent. Moreover, the urine is discharged with this appearance in scorbutic patients, though they are not afflicted with an intermitting fever^t.

But this sweat is usually followed with a soft sleep, and after this there is observed a perfect intermission or absence of the fever; but a weariness and weakness remain, whereby the fit of an ephemera may be distinguished from the fit of an intermitting fever, as we said before at §. 728. in treating of an Ephemera.

752. **B**UT these intermitting fevers frequently turn into such as are acute and dangerous, principally and most commonly from too great a heat and too great a motion excited in the humours.

As long as these fevers have a perfect intermission, they are seldom or never dangerous, except in old or very weak people; but when they degenerate into acute continual fevers, they are often very dangerous. That intermitting fevers are naturally inclined to make this change, was said before at §. 748; for it there appeared, that autumnal fevers, although properly intermitting in their own nature, do yet frequently resemble continual fevers, when, from the prolongation or replication of their fits, a remission only, without an intermission, can be observed. But it was there observed, that this more frequently happened, when the intermitting fevers were epidemical, and came in sooner than usual with the summer-heats. But even perfect intermitting fevers, which have kept up regularly to their periods for a time, do likewise sometimes change into continual acute fevers, if the patient is confined to his bed, or if the cure of the fever

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^s Vide locum modo citatum.

^t Vide H. Boer. Instit. sect. 1002.

is attempted by medicines which are too much heating; and thus also Sydenham^u has observed, that many have perished from the brain being injured by these fevers turning continual; and he likewise cautions against the use of sudorifics in tertian and quotidian fevers for the same reason, more especially if those fevers, having not yet put on their regular periods, seem to be as yet upon the brink of changing into continual fevers. But upon another occasion he remarks^w, that if the sweat, which usually closes intermitting fevers, be protracted or carried to excess while the patient is confined to his bed, it very often kindles a continual fever. But from what has been said it is sufficiently apparent, that this change of the intermitting into continual fevers, is to be ascribed to the exciting of too great a heat and motion. Thus a virgin, afflicted with a tertian, was advised to take a large draught of spirit of wine mixed with some hot ale and beaten pepper; whence the tertian was changed into a most violent continual fever, in which the patient was delirious for many days: but when the acute continual fever went off, the tertian again returned, but with great irregularities, and attended with the most obstinate and malignant symptoms^x. I have seen a quartan in the spring-time turn into the most severe pleurisy, from being treated with the hottest medicines; but the quartan did not continue while the pleurisy attended, as happened in the case mentioned before in the comment to §. 738. but the fit of the quartan, after taking the hot medicines, instead of ending in a perfect intermission or absence of the fever, changed into a pleurisy.

§. 753. **A**N intermitting fever, in running through its three stages before-mentioned, (§. 749, 750, 751.) offers great violence and injury to the smallest fibres of the vessels and viscera, by the stagnation, obstruction, coagulation,

^u Epistol. 1. Responsor. p. 375.

^w De Podagra, p. 565.
Medical Essays, Vol. I. cap. 31. p. 296.

on, propulsion, resolution, and too great attenuation of their humours; from hence the vessels are weakened, and their juices become morbid, being chiefly vitiated with that kind of disorder which proceeds from a too imperfect assimilation and unequable mixture of their parts; and from thence again, at the same time, arises acrimony: and therefore, from all these causes together, there is a great inclination in the patient to profuse weakening sweats, dissipating even the viscid parts of the blood itself; then also the urine is wonderfully thick, turbid, oily, and like that of melle, the saliva also appearing of the same kind; and hence the blood being weak, dissolved, with little cohesion in its red parts, and robbed of its best juices, what remains behind is thick and acrid at the same time; and therefore from a relaxation of the vessels, and the humours being rendered thick and acrid, these fevers of long continuance often terminate in chronical diseases, as scurvy, dropsy, jaundice, leucophlegmacy, hemorrhous tumours of the abdomen, and the disorders which may follow from thence.

If now we attentively consider every thing which happens in the three stages of intermitting fevers, described in the aphorisms here cited in the text, we may understand the many effects or consequences which happen in the body from these fevers, concerning which we are to treat under the present aphorism.

The soft and tender body of a young person after death becomes as cold as the ambient air, and then the limbs become so stiff that they can hardly be moved by any force. Almost the like rigidity is observed in the most severe and long-continued cold fit of a fever, and therefore it is evident that the cohesion of the solid parts is then greatly increased. But in the succeeding heat the parts are relaxed which were

were before rigid ; and, the velocity of the circulating motion being increased, the juices act with a greater impetus against the sides of the vessels, and distend them : whence the whole body, which before looked pale and contracted or collapsed, now swells and looks red. But when these changes are often repeated by the violent and frequent fits of intermitting fevers, the due strength of the solid parts must of consequence be greatly diminished. For even hard wood by often bending and straightening breaks, and the strongest springs in this manner lose all their force. Thus also the flesh of animals, if once frozen in the winter-time, do by a sudden heat become extremely tender ; whence it is evident how much the vicissitudes of heat and cold, suddenly following each other, may weaken the solid parts of the body.

If now it be considered, that, during the cold fit of a fever, the humours stagnate ; and that the blood, by rest in the larger veins and sinuses about the heart, tends to concretion, and becoming thus impervious obstructs the vessels, through which it is notwithstanding impelled with an increased force from the heart during the hot fit of the fever ; it is sufficiently evident, that then it must more difficultly pass through the smallest extremities of the arteries, and that therefore the vessels must be more dilated when there is a greater resistance about the extremities of the arteries ; and hence therefore the solid fibres composing the coats of those vessels will be more stretched and weakened, (see §. 25, n^o 3.) until the too strongly cohering particles of the blood are so attenuated and resolved betwixt the force of the heart and the action of the vessels, as to pass through the smallest extremities of the arteries into the veins, whereupon the paroxysm terminates, and the circulation returns to its former sedateness.

The vessels are therefore weakened, but the humours become morbid.] That is, recede from the condition of healthy humours. For it was demonstrated in the comment to §. 25, and 44. that a due strength is required in the solid parts, in order to assimilate the in-
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ested aliment into our own nature, and give the juices those properties which belong to our healthy fluids. Since therefore it has been demonstrated, that the strength of the solid parts is weakened by intermitting fevers, it is evident that a morbid degeneration of the humours must necessarily follow, more especially such as proceeds from an imperfect assimilation of their parts, and an unequal mixture of them together. For as the red blood in the cold fit runs towards the internal parts, as we are taught from the paleness of the body; and as it is accumulated, and almost stagnates, in the larger vessels about the heart; only the more thin parts, being expressed through the lungs into the left ventricle of the heart, continue life in a weak state: therefore that intimate mixture of all the parts of the blood together, which happens in a healthy state, will be thus disturbed; and thus the grosser particles of the blood seem disposed to recede afterwards from those which are more thin, since that intimate and most perfect union of the particles with each other is interrupted for so long a time. But as all our humours in a perfect state of health, except the bile and urine, are without acrimony, it is no wonder if they should become acrid when they degenerate from a healthy state, more especially as the motion of the blood is increased through the vessels during the hot fit of a fever; whereby its gelatinous and insipid parts may be dissolved into volatile acrid salts and oils, as we demonstrated before at §. 100. and then by the fever itself the formation of good chyle, to moderate the acrimony of the blood, is also impeded; and moreover, the due concoction and assimilation of the ingested nourishment is also deficient, even in the intervals betwixt the fits, from the weakness of the solids and degeneration of the humours.

From all these causes together, there is a great inclination to profuse weakening sweats, dissipating even the viscid parts of the blood itself.] For even the perfect mixture and union of the parts of the blood with each other are diminished, as we see from a too weak action of the solids upon the fluids when the texture of

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of the blood is less firm ; hence the thinner parts of the blood more easily recede from those which are more thick, and are expressed through the more relaxed vessels of the skin. But even the thickest red parts of the blood are dissolved by these fevers, as we are assured from the pale colour of those who have been long afflicted with them ; and thus not only the watery and thinner parts of our humours, but even the viscid part of the blood itself dissolved, are sometimes expelled by sweats. For we see, that the ingested aliments, when they are assimilated into our own nature, first assume the viscid or plastic disposition of the blood, which so easily concretes by an increased heat ; whereas naturally no such concrescible humours are expelled from the body and are naturally found in the serum of the blood, none of which is contained either in the urine, saliva, bile, or other humours separated from the blood, and much less are any of the red parts of the blood to be naturally found in any of those humours. But the vessels being weakened throughout the body, and their emissaries greatly relaxed by profuse and long-continued sweats, which emissaries open throughout the whole surface of the skin ; therefore the thicker humours may thus escape from the body by these ways, and even the viscid parts of the blood itself may be sometimes expelled. Thus in healthy people, exercised with hard labour in the scorching sun, a viscid sweat is expelled, tinging the linen of a yellow colour ; and even sometimes, more especially under the arm-pits, a red-coloured sweat is forced out. In dying people, a viscid and clammy sweat appears. But when those parts which are prepared from the chyle and ingested aliments in their assimilation into our healthy humours, are thus expelled from the body in sweats ; since it is from them that those parts must be afterwards restored which are destroyed from the solid and fluid parts of the body by the actions of life, it is sufficiently evident that great weakness must follow. Those are therefore deceived who, observing that the fit of an intermitting fever goes off with a sweat, judge that this sweat ought by all means to be promoted, thinking thereby to evacuate all the febrile matter. For

daily

daily observations teach us, that those are above all the most difficultly recovered from intermitting fevers, who melt away with the most profuse sweats; nor is their recovery practicable, unless these sweats are first restrained. Hence also (as we shall declare hereafter at §. 764.) the sweat which attends at the end of the paroxysm, is to be moderately promoted by flesh-broths, ptisans with wine, and the like, which afford plenty of liquid nourishment: but that they ought not in the least to be forced by remedies, nor the heat of bed-clothes, lest such parts of the humours should be forced out in sweats as ought to be retained. But the weakness and lowness which follow after these profuse sweats, sufficiently demonstrate how prejudicial they are. For here takes place the general rule in practice which Hippocrates has established, not only with respect to purgings and vomitings, but also with regard to any other evacuation from the vessels; namely, That these ought to be conducted and promoted in a convenient manner, if they prove useful, and are easily tolerable to the patient; otherwise, that they ought to be checked ^v.

Then also the urine is wonderfully thick, turbid, oily, and like that of cattle.] For the urine is a watery exuvium, mixing itself with, washing out, and expelling from the body, every thing capable of being dissolved in water, and of passing through the vessels of the kidneys; and it naturally serves to wash out those acrid, oily, and saline parts, which would be mischievous if they were any longer retained in the blood. But since by the increased motion of the circulation in the fever, the oily and saline parts of the blood acquire a greater acrimony, (see §. 100.) and a great number of particles are abraded from the solids, while the parts of the blood itself are less assimilated, and not uniformly mixed, joined with a weakness of all the vessels; therefore the reason is evident, why the urine is thicker, and more highly saturated with contents, so as to appear turbid, saponaceous, and oily, almost at the instant when it is discharged. For we know that in intermitting fevers the fat parts of the body are dissolved

dissolved and expelled, since fat people long afflicted with these fevers become perfectly lean. But these fat or oily parts, dissolved, and mixed with the circulating humours rendered more acrid by heat and motion through the vessels, become at length saponaceous by mixing likewise with the more acrid salts of the blood; and thus dissolving in water they escape in the urine. For the same reasons likewise the saliva sometimes appears of the like kind, that is to say, thicker and more abundant, when the vessels serving to separate and discharge this fluid, being weakened, are too much urged or over-strained by the humours impelled with a greater force by the fever.

Hence the blood is also weak and dissolved, having little cohesion in its red parts, &c.] The blood of healthy and strong people is firm and compact, so that it almost entirely concretes into a solid mass when it is drawn out from a vein; but, on the contrary, in relaxed and weak girls the blood is thin or watery, and appears to contain only a small portion of a red concrete swimming in a large portion of a thin liquor. But this great difference in the blood proceeds from the greater or less strength of the vessels and viscera which act upon our fluids, as we demonstrated before under the titles of a Weak Fibre and a Rigid Fibre. But since we have demonstrated, that the vessels are weakened by intermitting fevers long continued, therefore the cohesion of the parts of the blood will be lessened, and from thence the cruor or red part of it will be dissolved and will hardly concrete, and at the same time the most fluid and moveable parts will be expelled by sweats after each paroxysm; and although the fluid parts are again restored by plentiful drinking, yet they will continue crude, while the assimilating powers are weakened; so that the blood will be robbed of its best parts, and, while its most fluid parts are expelled in sweats, what remains will grow thick, at the same time that it recedes from the mild nature of our healthy humours by turning acrid, as we have already demonstrated. If now these two causes concur, namely, weakness of the relaxed vessels, and a greater thickness and

acrimony

primony in the humours moved through those vessels, the reason will be sufficiently evident of the disorders which usually follow after violent and long-continued intermitting fevers; concerning which, see also what has been said at §. 44. But we have more especially reason to fear a too easy dissolution of the vessels, while the thick and acrid humours are impelled with a more rapid motion through the weakened vessels during the paroxysm of the fever. Thus I saw a large quantity of blood burst forth from the gums of a virgin afflicted with a violent and long-continued quartan, and ecchymoses appeared upon the eye-lids without any external violence: and hence we may understand why Hippocrates says, *That a flux of blood from the nose is a bad sign in such as have quartan fevers* ^z. I know indeed, that these last aphorisms are esteemed by many to be not genuine; whence the credit of this last quotation may be called in question, because it seems repugnant to another passage, where he says, *That thick white urine, like that of Archigenes, is sometimes discharged in violent quartans, and critically relieves the patient; and this more especially if there is besides a sufficiently copious flux of blood from the nose* ^a. From whence it would seem as if he recommended an hæmorrhage from the nose to be useful and salutary in quartan fevers. But if this place be compared with the 74th aphorism of his 4th section^b, which we mentioned before upon another occasion in the comment to §. 594; it will sufficiently appear, that the term *τεταρταῖς* (*quartanis*) does not relate to fevers, but to the day of the disease; and therefore that it does not denote an intermitting quartan fever, but the *fourth day* of a fever. And in this manner Boësius and Cornarius translate this text, as Charterius very well observes in his commentaries upon these last aphorisms of Hippocrates ^c. An hæmorrhage from

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^z Quibus in febribus quartanis sanguis e naribus fluxerit, malum est. *Aphor. 5. sect. viii. Charter. Tom. IX. p. 342.*

^a Urina crassa, alba, qualis Archigenis, in laboriosis quartanis interitum exit, et liberat abscessu. Si vero ultra hoc et sanguis de naribus profluit et satis et copiose. *Epidem. 6. Charter. Tom. IX. p. 475.*

^b Charter. Tom. IX. p. 184. ^c Ibid. p. 342.

the nose is therefore justly condemned as a bad sign in quartan fevers, upon the authority of the passage before cited; as well as because evacuations of blood are in themselves prejudicial in the cure of intermitting fevers, as we shall declare hereafter at §. 762; and such an hæmorrhage seems to denote, that the vessels are too easily capable of a dissolution from the more acrid blood.

From this thickness and acrimony of the blood, those inflammations of the tonsils seem to have been produced, which Sydenham^d observed after long-continued intermitting fevers, more especially if too profuse evacuations had been used. But he remarks, that this disorder was soon after followed with a hoarseness, a hollowness of the eyes, and an hippocratic face; certain forerunning signs of death. But it is evident enough, that the like disorders may happen in other parts of the body from the same causes. Thus Jacotius remarks, That he had observed, three times in the same year, a suppuration formed in the lower belly in a tertian fever, without the common rigor or cold chill, and without any remarkable sign preceding; whence the matter being suddenly poured out upon the intestines, or the intestines themselves turning to a mortification, sudden death ensued, with a rigor, cold sweats, fainting fits, and a pain and inflation of the abdomen^e. For such blood as is both sharp and thick at the same time, is the most apt to produce inflammations, as is evident from what has been said at §. 376, 377.

Terminate in chronical diseases, as the scurvy, dropsy, &c.] At the same time also it appears, that such a cacochymia of the blood, arising from intermitting fevers long continued, may produce various chronical and most stubborn diseases, according as the obstructing matter is lodged either in this or that viscus; or according as the chronical diseases arise from disorders gradually introduced in the juices, infecting the whole mass of blood with an ill state, (see §. 1050.) Thus that the scurvy should often follow intermitting fevers, will

^d Sect. i. cap. 5. p. 122.

^e Holler, in Coac. Hippocr. p. 811.

will not appear wonderful to any one who considers, that the proximate cause of this disease is too great a sickness and acrimony of the blood, as we shall hereafter demonstrate at §. 1153, from all the previous appearances of the disease. But it was demonstrated at §. 44, n^o 2. that a dropfy arises in part from too great weakness of the solids; which weakness takes place in the present disorder, as we observed a little before. In this case the legs usually swell first; and when these are perfectly distended, the lymph is collected in the cavity of the abdomen. But a swelling of the legs is no bad sign, nor did Sydenham^f ever esteem it as such; but rather he began to conceive hopes that the disease would terminate well, being taught by observation, that the fever often went off by degrees in proportion as this symptom advanced: and then such a swelling of the legs does not seem to arise from mere laxity only, but something of the morbid matter is also deposited upon these parts. But as purges, too often repeated in the course of the fever, frequently give birth to this symptom, which seldom happens, at least in young people, but from that cause^g, it seems to be less safe to attempt the cure of these disorders by evacuations, more especially if the fever still continues; nor Sydenham^h had observed, that such medicines made the fever take deeper root, at the same time that they did not remove the dropfy. Frictions of the swelled parts, and the use of medicinal wines, with bitters, and corroborating aromatics, usually remove the disorder with ease and safety, while at the same time they happily relieve the languishing body.

[Leucophlegmacy.] The same thing happens if the inactive matter is not deposited towards the lower parts of the body, but being diffused throughout the whole habit produces a leucophlegmacy: which (as we said before at §. 72.) differs from a dropfy; because, in the latter, the humours degenerate into a watery thinness; whereas in a leucophlegmacy, they are cold, pituitous, and indisposed for motion, producing a paste-like or inelastic softness of the whole
 S 3 body;

body; while in a dropsy arising from too great a dissolution of the blood the feet first begin to swell. Even Hippocrates has remarked, that a leucophlegmacy arises after long-continued fevers, when he says, *That those who are afflicted with white phlegm, have a white swelling of the whole body,*ⁱ &c. *This disease arises from phlegm, when any one, after long-continued fevers, has not been purged of the phlegm with which they abound, and which diffuses itself throughout all the soft or fleshy parts*^k. But a much worse dropsy follows after long-continued fevers, if they occasion schirrous obstructions of the viscera; as we shall demonstrate in the comment to §. 1229.

[Jaundice.] But since it is demonstrated in our author's Institutes, that the venous blood returning from the pancreas, stomach, omentum, spleen, and mesentery, is collected together in the trunk of the vena portarum, and from thence distributed by the converging branches of the same vessel throughout the whole substance of the liver; it is therefore evident, that obstructions may be very easily formed in this viscus by the thick blood, when it has been deprived of its most fluid parts by long-continued fevers, because here the venous blood is obliged to pass through narrow arterial extremities without any new force from the action of the heart. But that an obstruction of the liver is frequently followed with a jaundice, will appear from what will be said hereafter, when we come to treat of an inflammation in the liver. Hence also I remember, that in the year 1727, when autumnal intermitting fevers were very obstinate and epidemical, a great many patients were afterwards troubled with a jaundice.

[Schirrhous tumours.] But from the same cause obstinate obstructions may arise in the other viscera of the abdomen; as we are taught by experience and observation, that they sometimes change into schirrhous
tumours,

ⁱ Quum pituita alba detinuerit, totum corpus tumore albo intumescit, &c. *De affectionibus, cap. 5. Charter. Tom. VII. p. 625.*

^k Morbus hic a pituita oritur, quum quis ex diuturnis febribus, pituitosus existens, impurgatus est, vertitur pituita ad ejus carnes. *De Internis Affect. cap. 52. ibid. p. 675.*

humours, hardly capable of being afterwards resolved. Thus Galen¹ observed in an obstinate tertian, which beginning in autumn held unto the spring following, that the spleen greatly swelled, and that the præcordia were distended with flatus. Also it is evident enough, that the same thing may happen in the pancreas, omentum, mesenteric glands, &c. But in the mean time it is to be observed, that tumours of the abdomen following after intermitting fevers, are not always of such an ill presage: for Sydenham has observed, "That when children have been long afflicted with autumnal intermittents, there is no hopes of vanquishing the disease till the *abdomen* (especially that part of it near the spleen) swells and grows hard; the distemper abating in the same degree, as this symptom manifests itself. Nor can we, perhaps, more certainly foretel that the intermittent will go off in a short time, than by carefully attending to the appearance of this symptom^m." For after the fever has ceased, the collection of foul humours is usually happily resolved and expelled from the body by purges, several times repeated, with frictions of the abdomen, and inunction with *ung. arthanitæ, martiati, &c.* For it seems frequently to happen, that the colon stuffed up and swelling about the region of the spleen, where that intestine is inflected, resembles a schirrhus: for we have often observed, that such tumours are much sooner resolved and cured, than could possibly happen if the disorder was seated in the spleen. It is moreover to be remarked, that in those years when intermitting fevers spread epidemically, then this tumour of the abdomen, which usually invades children after these fevers, feels to the touch like a schirrhus; but in those years when they are not epidemical, the distension rather appears flatulentⁿ.

But it is evident enough, that many more disorders may follow from hence, according to the different nature of the obstructed viscera, and injury of the functions thereon depending. But it is sufficient for us in this

¹ Method. Med. ad Glaucon. lib. i. cap. 9. Charter. Tom. X. p. 352.

^m Sect. i. cap. 5. p. 121.

ⁿ Ibidem.

this place to point out the general spring of them all.

§. 754. **F**OR the rest, unless these fevers are malignant (§. 753.) they dispose the body to longævity, and purge it from inveterate disorders.

But although all the disorders enumerated in the preceding aphorism sometimes follow after intermitting fevers, yet they do not always injure the body, but only when the fits being violent too much weaken the powers of a sudden, dissipate the most fluid juices by too profuse sweats, or by their too long continuance enervate and relax the whole body with respect both to its solids and fluids; for generally, if the patient uses a proper regimen of diet, and avoids a perverse method of cure, these fevers are easily tolerable, and usually do more good than harm. The celebrated author of these aphorisms assures us, that those long-lived people, of whom he had interrogated many concerning this matter, owned themselves to have been afflicted with a quartan fever in the flower of their age, which of all intermittents is usually of the longest continuance. Nor do I believe, that any physician, who has considered this disorder, will deny, that after quartan fevers, disturbed with no powerful medicines, but gradually resolved by a good diet in the spring-time, the bodies of such people have been afterwards found more firm and much less subject to diseases than before. For these fevers have generally a compendium of that kind of life which Celsus^a recommends to some people: for intense cold is followed with great heat; during the time of the paroxysms, the patients generally have an aversion to all sorts of food, to which they have often a strong appetite upon the intervening days which are free from the fever. But also, by a long-continued quartan, the whole body is often emaciated, all the fat being dissolved and expelled by the urine and other emunctories, even as much as by mercury itself or sudorific decoctions; whence is obtained:

^a Lib. i. cap. i. p. 20.

almost a radical change of the humours, by a resolution and expulsion of the old; whence the body is best disposed for the reception and restoring of new vital matter: and therefore the body is by a prudent regimen in these fevers disposed to longævity^o.

If now it be considered, that, in the cold fit of intermitting fevers, the whole body trembles and shakes violently often for several hours, almost as much in the parts that are internal as in the external; and the extremities of the arteries being contracted repel the humours back into the larger trunks, as we are taught from the paleness; there may be thus an opportunity given for happily removing the obstructing matter hesitating in the extremities of the arteries: and from hence it will not seem wonderful, that many disorders should be thus relieved or removed, which are not at all affected by other medicines; more especially as soon after there follows a rapid motion of the humours through all the vessels, whereby the obstructing matter which was lodged in the viscera, being rendered moveable by the repeated concussions, is further dissolved. Hence the reason is evident, why these fevers so frequently remove the most inveterate diseases from the body, after they have been in vain attempted by other medicines. Medical history supplies us with many observations confirming this truth, but it may be sufficient to instance a few. I have often seen in patients afflicted with autumnal tertians, extremely stubborn, and spreading epidemically, which have been suppressed by an imprudent use of the bark before the morbid matter has been subdued by the fever, and which in these cases is generally lodged about the præcordia, that every thing has been tried in vain for their relief, the unfortunate patients being confined to their beds, discoloured with a jaundice during the whole winter, until they are seized with a vernal tertian in the month of February; and then, by a few fits thereof, the obstructing humours lodged in the viscera have been dissolved and expelled by stool, under the appearance of a thick, black, and most ill-smelling liquor, generally

nerally attended with the most happy effects. But in some, though not so often, the liver being long obstructed and wasted or dissolved by these foul humours after disturbing them, pure blood has been discharged from the intestines; whence the greatest weakness, fainting fits, and death itself, have sometimes followed, from the great quantity of blood discharged either by vomiting or stool. Even Hippocrates^p observes, that a quartan is not only a safe disease, but also that it prevents other greater diseases; as we said before upon another occasion at §. 558. He likewise tells us that those are freed from convulsions, who are invaded by a quartan^q. A head-ach, which returned periodically for several years, I have known to cease during the whole time that the patient has been afflicted with a quartan. An inveterate pain of the right shoulder I have known to disappear when a person has been seized with a quartan fever; with which the patient being fatigued for six months, took the bark with such success, that it removed the quartan indeed, but the pain returned again in the shoulder; after a month the quartan returned again, which being patiently endured till it went off of itself, the person afterwards lived free from the troublesome pain. The most violent palpitations of the heart, a disorder which too frequently remains unknown to us with respect to its causes, and is often no less stubborn to all remedies, was cured by a quartan in the celebrated mathematician De la Hire^r; who afterwards lived healthy to the age of 78, confirming by example, that a quartan removes inveterate disorders, and disposes to longævity.

Intermitting fevers are therefore often salutary; and unless their fits, being protracted or doubled, incline them to the nature of continual fevers, they seldom prove fatal; except in decrepid old people, or others extremely weakened from any cause. Thus Forestus^s testifies, that, during the whole forty years of his practice, he had not known any one die of a tertian fever,

unless

^p Epidem. i. Charter. Tom. IX. p. 88.

^q Aphor. 70. sect. v.

^r Ibid. p. 242.

^r Academ. des Sciences l'an 1718. Hist. p. 110.

^s Tom. I. lib. iii. obs. 8. p. 84.

less it changed to be continual. Even the nature of tertians has been observed so opposite to that of the pestilence, that, while all other epidemical diseases turn to the plague, tertians never degenerated into that temper^t.

755. **H**ENCE therefore, after a due examination of the whole history of intermitting fevers, (§. 746, to 755.) the proximate cause appears to be a viscosity or sluggishness in the arterial juices; and perhaps an inactivity of the nervous juice, both of the brain and cerebellum, destined to the heart; after which supervenes the same cause exciting a swifter and stronger contraction of the heart, and a resolution of the matter which stagnated.

In order to discover the proximate cause of an intermitting fever, one ought carefully to consider what alterations appear in the body when the fit begins. But if we consider the appearances mentioned before at §. 749, it will be evident, that the first signs of the fit's approaching, are such as demonstrate the usual and equable influx of nervous spirits into the muscles to be disturbed, as we are taught from the lassitude, weakness, and trembling; and at the same time that the blood is not propelled with its due force and quantity through the vessels to the extreme parts of the body, as is evident from the cold fits, horror, rigor, paleness, &c. And therefore it is not without reason that the proximate cause is placed in the *viscosity of the arterial fluids*, and possibly likewise an *inactivity or sluggishness of the nervous juice both of the brain and cerebellum destined to the heart*. But by this viscosity or lentor of the arterial fluids, we do not understand an increased thickness and greater cohesion of the particles of the blood amongst each other, but an indisposition of any kind impeding its free motion, whether that impediment arises from a fault in the fluid to be moved, or of the

^t Van der Mye Morbis Bredanis, p. 5.

the containing vessels, or of the moving powers. But as the action of the voluntary muscles is weakened in the beginning of the fit, so that the patient can certainly foretel that the fever is at hand from the sudden and unusual weariness and weakness; and as at the same time the motion of the heart itself languishes in such a manner, that though it is irritated by the venous blood to contract more frequently, yet it is with a weaker force, so that it cannot propel the blood with a due impetus into the arteries, as we are taught from the pulse being at this time of the fever quick, weak and small; hence it seems very probable, that the nervous juice both of the brain and cerebellum destined to the heart is so sluggish, that it acts with a less efficacy upon the muscles destined to the exercise both of the voluntary and vital motions. For if such a sluggishness be supposed to arise, from any cause whatever all those symptoms may follow which are observable in the first stage of an intermitting fever, that is, in the cold fit. For the heart, contracting with a less force will propel the blood with a weaker impetus into the arteries; and these being less distended will also exert a less re-action upon their contained fluids at the time when the heart is in its dilatation: and perhaps too from the sluggishness of the spirits from the cerebellum, the vital motion of the muscular fibres of the arteries is also diminished; and therefore the two causes moving the blood languish, so that this fluid can hardly be driven to the extreme parts of the body, or at least it is not propelled with a force sufficient to excite the natural and healthy heat. But from the cold arising, the arteries being contracted, the resistance to the blood to be moved through them is increased, while at the same time the blood returning by the veins irritates the heart, which yet for the reasons before given cannot freely propel its blood into the arteries. Hence therefore that opinion appears to be sufficiently probable, which places the beginning of the fit of an intermitting fever and its proximate cause, in a sluggishness of the nervous juice; which must in a little time be followed and attended with that viscosity of the arterial

erial fluids, which proves an impediment to its free motion through the vessels, as we said before.

There are still many more circumstances which favour this opinion: for when, in the beginning of the fit, we see an obstruction formed, whereby the arterial blood cannot be propelled to the extreme parts of the body with its due quantity and impetus, this must arise either from an imperviousness of the fluids to be moved, from a greater resistance of the vessels, or from a deficiency in the moving powers. But a person afflicted with a quartan was but a few minutes before the fit seemingly in perfect health, and is often deceived with false hopes of being free from the fever for that time: and therefore it is hardly conceivable, that so sudden a change can arise in the blood, as to render it impervious almost in a minute of time; and much less is it credible, that a greater rigidity in the solids can arise so suddenly as to over-resist the impulse of the fluids. It therefore only remains, that the cause of this sudden change must lie in the powers moving the humours through the vessels, or in that *impetum* *accidens*, as it is called by Hippocrates, which we know to be very easily changeable, even from the slightest causes. Thus I have seen a healthy virgin, frightened at the sight of a squirrel, immediately seized with the cold fit of a quartan, which afterwards continued the whole winter, till it happily went off by the warmth of the spring following: but after she had been free from the fever for two months, she had unfortunately a dead squirrel thrown into her lap by a mischievous maid, the fright from which occasioned many more fits of the quartan. In young infants convulsions are frequently observed at that time when the salutary fits of vernal tertian begins; which is no obscure sign that the whole nervous system, which is so moveable in this tender age, has been disturbed from a change in the condition of the most subtle nervous juice. I have known a tertian arise in the spring-time, in the middle of a salivation, when all the humours were dissolved by the use of mercury; so that there could be no prevailing lentor, the intermittent disappearing

after the fourth fit. Another argument is, that the Peruvian bark, which is so infallible a remedy for all intermitting fevers, is likewise the most happily useful in hysterical and hypochondriacal diseases arising from too great a mobility of the nervous system and irregular motions of the spirits; and Sydenham^u even assures us, that it has been more especially useful in those cases which have been attended with violent convulsions. Perhaps this may be the reason why intermitting fevers are observed to be more stubborn in people who have such weak and irritable nerves; so that they can scarcely be cured but by the Peruvian bark, which is at the same time of the most happy use by its corroborating virtue. But what is more, violent commotions of the mind, and especially such as employ the whole mind, and take place in it a long time together have sometimes cured intermitting fevers, by removing or altering this sluggishness of the most subtle juice, upon which the beginning of the cold fit seems to depend. Thus Fabius Maximus Quintus, being sent in battle against the Allobroges and the inhabitants of Avern, was freed from a quartan fever by his attention to the sword^w.

The most acute Borelli^x places the first and immediate productive causes of the hot fit in the nervous juice: but he seems in a great measure to have indulged speculation too much, when he endeavours to determine what this alteration in the nervous juice is and to explain the causes from whence the return of the fits in intermitting fevers proceed; as I believe will appear plainly to every one who attentively reads through that chapter.

Indeed the symptoms observed seem to teach, that at the time when the fit begins, the effects of this subtle fluid moved through the nerves into the muscles are altered; but in what manner this happens, and from what causes, seems very difficult to explain. It is certainly best to proceed in discovering the causes of diseases as far as we can be led by faithful observation.

^u Dissertat. Epistol. p. 519. ^w C. Plin. Secund. Nat. Hist. lib. viii. cap. 50. ^x De Motu Animalium, part. ii. cap. 22. prop. 225. p. 289, &c.

tions and the hitherto known structure of the body; but in other things we should rather confess our ignorance, than cloke it by feigning and playing with hypotheses, however ingenious.

But what has been hitherto said relates only to the first stage of an intermitting fever, (§. 749.): which is soon after followed by another stage, (§. 750.) in which there is a heat and redness, and the pulse appears larger and stronger; from which we know, that then the heart contracts more swiftly and strongly at the same time, and that the blood contained in the heart is driven with a strong force through the arteries to the extreme parts of the body; whence we infer a resolution of those humours which stagnated. In the cold fit of a fever, the venous blood, accumulated about the heart, irritates that into more quick but weak contractions; and therefore another cause is necessary either to increase the force of the heart, or remove that which diminished its force in the cold fit, whatsoever that may appear to be. But the greater lentor of the blood, which arose from its stagnation about the heart, will be easily overcome, when the force of the heart being increased, propels it more impetuously through the converging vessels; whence will follow an attrition of the cohering particles against the sides of the vessels, and against each other, which will therefore produce dissolution of the concreted febrile matter: for the same cause which prevents the concretion of the blood in a healthy state, seems best able, when moderately increased, to remove the concretion once begun. But so great a cohesion arises betwixt the particles of the blood during the cold fit of a fever, that it cannot be thus dissolved, then suffocation or death follows, as we said before at §. 749; which yet is very rarely observed to happen, and hardly ever but in such as are very old or extremely weak.

. 756. **S**INCE therefore this order of the stages (§. 749, 750, 751.) always takes place in an intermitting fever; it would seem,

seem, that what is able to remove the first stage (§. 749.) and the first cause (§. 755.), might be also able to remove the whole fit itself.

Since therefore it is evident, from the course of the fit in an intermitting fever, that the cold chill, and the other symptoms which attend it, first invade the patient, and are afterwards followed with a febrile heat, which at length terminates in a sweat, with a remission of all the symptoms; therefore the cure of such a fever seems principally to require a removal of this stage, namely, the cold fit, and its first or proximate cause, namely, the viscidities of the arterial fluids, and the sluggishness of the nervous juice: for then the rest of the febrile symptoms will be prevented, as they never appear without these proximate causes have preceded. Upon this consideration is founded that excellent method of curing intermitting fevers, which we shall presently lay down at §. 761. namely, by filling the body with thin, aperient, and diluent liquors, that a sweat may be excited an hour or two before the fit is expected; namely, that thus the humours being attenuated and diluted, the viscidities of the arterial fluids may be prevented, the vessels happily kept pervious, and the humours moveable, while at the same time the febrile cold is prevented by a moderate warmth attending the sweat. But in what cases, and with what cautions, this method is to be put in practice, we shall declare hereafter. For it is a very bad practice to endeavour to remove or prevent the cold fit of an intermitting fever by the warmest aromatics; for there is great danger lest incurable inflammations should be thus produced, as the febrile heat which is about to follow after the cold fit is too much increased by these over-heating medicines; concerning which, see what has been said before at §. 624. But the ancient physicians seem to have been of opinion, that this first stage or cold fit of intermitting fevers ought to be prevented by exciting a moderate sweat, and greater heat, by warm bathing, frictions, &c. Thus Celsus^y recommends

^y Lib. iii. cap. 12. p. 142.

recommends placing of the patient in a warm bath, about the time when the fit is expected, in order to prevent the cold fit or chill in fevers; for, says he, *dandum opera est, ut per tempus horroris in solio sit*, "care must be taken to place the patient in the bath about the time of the shivering:" and this he would have repeated, with frictions, in the subsequent fits. And he says, *Neque desistendum est, etiamsi horror redit; sapientiam pertinacia juvantis malum corporis vincit*: "That the method is not to be laid aside though the cold fit returns; for often long continuance in the same method, with the assistance of nature, conquers the disease^z." But if the bath is found of no service after several fits, he orders the patient (*ut ante accessionem allium edat, aut bibat calidam aquam cum pipere; si quidem ea quoque assumpta calorem movent, qui horrorem non admittit*), "to eat garlic, or drink hot water with pepper, before the accession; inasmuch as those being taken excite a heat, which keeps off the cold fit^a." But how much a prudent use of warm aromatics may be of service in the cure of these fevers, when they are diluted with much water, will be made apparent hereafter. It is sufficient here for us to remark, that Celsus placed great hopes of a cure in preventing the cold fit by exciting a heat. Hence, in the cure of a quartan, he orders the patient, *qua die febrim exspectabit, surgere et exerceri; dareque operam portet, ut in ipsam exercitationem febris tempus incurrat: sic enim saepe illa discutitur*; "to get up and exercise himself upon the day when the fever is expected, and to use his endeavours to let the time of the fever fall out upon the height of his exercise; for by that means the fever is frequently shook off^b."

§. 757. **M**OREOVER, as an infinite number of causes, and those even slight, may produce the first stage or cold chill (§. 749.) of a perfectly intermitting fever (§. 727.) and its cause (§. 755.); and as great numbers of such causes

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arise,,

^z Ibidem.

^a Ibidem.

^b Lib. iii. cap. 15, p. 149.

arise, increase, and in a certain time may arrive to a considerable height in the body, as happens in all the juices formed and separated throughout the whole habit; it is therefore the more difficult to distinguish, out of such a number of possible causes, the real and true cause, than to contrive or imagine one that is possible; which being supposed or granted, a reason may be given for the periods or returns of these fevers, agreeable to the laws of our animal œconomy, which will appear to any one who examines into the case.

We come now to that which has tortured the reason almost of every physician, as being very difficult to explain; namely, why the fits in intermitting fevers return at certain periods, while continual fevers run through their whole course without interruption from the beginning to the end of the disease.

Sydenham^c was of opinion, that the difference betwixt continual and intermitting fevers consisted chiefly, in that intermittents performed the same thing at different and separate times, which a continual fever performed by an uninterrupted motion: and hence he judged about the same time to be necessary to be employed for changing, subduing, and expelling the febrile matter in an intermitting as in a continual fever. For as the most frequent continual fever which happens, usually performs its course within the space of fourteen days, in which space are numbered three hundred and thirty-six hours; he therefore believed, that about a like number of hours were employed by a quartan fever, which endeavoured to throw off its matter from the blood within the space of six months. But as, in indulging this opinion, he ascribes five hours and a half to each fit or paroxysm of a quartan, though very often they hold the patient a much longer time; he answers not only this, but also another difficulty, arising from the greater length of quartan fevers. His words are: “But though the blood sometimes in *intermittents*,

termittents, as it happens in a *quartan*, attempts, and at length finishes its depuration in six months; yet by an exact computation it will appear that there is no more time employed here, than is, for the most part, naturally spent in compleating the depuration in continued fevers. For fourteen times twenty-four hours, or fourteen natural days, make three hundred and thirty-six hours; so that allowing five hours and a half for the duration of every fit of a *quartan*, the whole will be equal to fourteen days, that is, three hundred and thirty-six hours. If now it should be said, that a *quartan* sometimes lasts above six months, which also holds in other intermittents; I answer, that the continued fevers of this constitution are likewise often prolonged beyond fourteen days: but, in both cases, if care be taken to keep up the effervescence in a proper manner throughout the course, and especially towards the declension of the disease, the depuration will be finished in the time above-mentioned. Whereas if the fermentation be unseasonably checked by cooling medicines, or glysters, in this stage, no wonder the disease proves lasting: the procedure of nature being by this means disturbed, and the texture of the blood in a manner loosened or broken, so that it cannot effectually attempt the depuration." Yet he remarks^d, that all this is to be understood only of those fevers which acquire a certain settled nature or habit: for there are many fevers, both continual and intermitting, which do not extend to that period; as when they arise in very young patients, of a good habit, from some slight error in the six non-naturals, and are soon cured. But Sydenham in this place treats of autumnal intermitting fevers, which are usually of longer duration and more difficult to cure, and which frequently spread epidemically at the same time with continual fevers.

But even the ancient physicians seem likewise to have made a sort of affinity betwixt continual and intermitting fevers. For after Hippocrates^e has told us, that the first insult of acute diseases terminates on the fourth

^d Ibid. p. 107.

^e In Prognost. Charter. Tom. VIII. p. 666.

fourth day, the second on the seventh, the third on the eleventh, &c. until, by ascending with the number four or seven, he arrives at the sixtieth day, (see concerning this what has been said concerning critical days at §. 741.) he at last subjoins the following words: *Fit autem et quartanarum constitutio ex hujusmodi concinnitate*; “ But also the constitution or progress of quartans, is made with an affinity to this kind of reckoning.” Galen in his commentaries^f to this place observes, that as in *continual* fevers we number the *days* following each other without interruption, so the *fits* are to be reckoned up in *intermittents*; and therefore that the seventh fit in intermittents, answers to the seventh day in continual fevers; and as the fourth day in continual fevers bears a proportion to the seventh, so does the fourth fit of an intermittent with respect to the seventh. But as the seventh day is so often critical in continual fevers, so likewise the seventh fit usually terminates an exquisite tertian. From hence Galen concludes, that Hippocrates would be understood by the word *affinity* or *concinnity*, to mean the order of the critical days; yet so that the termination of quartan fevers is not limited to the number of days, but the number of fits or accessions. Now, as Hippocrates, in the place last cited, makes the sixtieth day the boundary of acute fevers, if we number sixty accessions or fits of a quartan, it will take up the space of six months, which a quartan usually occupies from the beginning of autumn to the spring next following. But (as we observed before) acute diseases, *viz.* those called *extended*, (see §. 564.) do sometimes run out to a greater length; and the same is also observed in quartans.

But there here remains a great difficulty, since the reason does not appear why intermitting fevers should perform this at several times, which is performed by a continual fever in one uninterrupted course. Is it that the intermitting fever subdues and expels part of the febrile matter from the body by every paroxysm? or that all the matter which is present in the same fit

being

ing expelled and subdued, more is renewed in a certain space of time, capable of repeating the fit? These indeed seem to be very subtile speculations, and which ought to be inquired into with the utmost care, as far as faithful observations and just reasoning will conduct in matters of this obscurity.

Sydenham^s has observed, that in an acute continual fever, which by a just treatment was used to go off with a moderate sweat about the fourteenth day, if purges or clysters were unseasonably used, the patient could perceive a fallacious relief, and sometimes even seem to enjoy a perfect absence or intermission of the fever; but in the meantime, the febrile matter not being rightly evacuated by the critical sweat, a new fever is usually kindled again after a day or two, which ran through other fourteen days like the former, and required the same method of cure. It is no uncommon thing for imperfect crises to happen in acute diseases, whereby part only of the morbid matter is evacuated; from whence, after some days intermission of the fever, a new one is kindled again, till the patient is perfectly freed by another critical evacuation following: for that several crises sometimes happen in one fever, is evident from what was said before at §. 587, of a Crisis; and at §. 741, of Critical Days. It is therefore evident, that, the febrile matter being subdued or expelled only in part, the fever will return again after it has ceased for a time; and therefore it is not repugnant to what we know happens in diseases, if we suppose the fits of intermitting fevers to return from a like cause. But it is to be observed, that these returns in acute diseases terminated by an imperfect crisis, never keep up to any certain period of time, like what we observe in the fits of intermitting fevers; although they commonly happen upon a day which is one of the critical number, as we said at §. 727.

Moreover, though part of the morbid matter may be subdued and expelled at each paroxysm, yet there is no reason appears why the quantity or activity of what remains should be increased in the interval be-

twixt

twixt the fits of each kind of intermittents, so that in a quotidian fever, for example, the fit shall return after twelve hours, and in a tertian after thirty-six hours, &c. But then, we all know, that, by giving the bark, the future paroxysms are prevented even without any sensible evacuations. For although, as we shall declare hereafter at §. 767, some would have the Peruvian bark to be only capable of safely curing all kinds of fevers when after the use of it a sensible evacuation follows by stool, sweat, or the like; yet it cannot be denied, that the fever ceases by the use of the bark before these evacuations happen, and that therefore the cure of the intermitting fever cannot be ascribed in this case to an expulsion of the morbid matter.

The like difficulties seem to arise, if we suppose the present morbid matter to be subdued or evacuated at every fit, and that new matter accumulated in the intermediate time betwixt the fits is the only cause and spring of the paroxysm next following. Certain we are, that people afflicted with quartans find themselves perfectly well a quarter of an hour before the fit; and yet, at the same time, that morbid matter must be present which soon after excites such great disturbances.

But although it cannot be denied, that corrupt humours, indigested food, and many other causes enumerated before at §. 586, may excite a fever; and that therefore the like causes, applied to the body at certain intervals of time, may seem able to produce various fits of intermitting fevers; yet these alone will not be sufficient, but something more is required, as will appear to every one who considers the following paragraphs. When a patient is afflicted with an autumnal tertian, and has been free from it for some days, if such a one eats a large quantity of bacon, dried hard with salt, or in the smoke, or if he unwarily exposes himself to the injuries of the weather, the fever very often returns again, and observes its former periods. But even one afflicted with a quartan in the spring-time, from the like errors in diet when the fever is off, may suffer a return of the quartan. There is

therefore in these patients a latent and various disposition, which being stirred up by the same causes produces in one patient a tertian, in another a quartan fever; and therefore the differences of the intermitting fever in such people does not arise from the accession of a new cause, which is supposed to be the same in both, but from a previous disposition differing in each person. It is therefore evident, that a certain matter being accumulated in the intermediate time betwixt the fits of intermitting fevers, may perform the part of an exciting or an occasional cause, but that the predisposing cause is altogether different from this. See what has been said concerning the predisposing and occasional or exciting causes, in the comment to §. II, and 586.

But that this pre-disposing cause, whatever it may be, limits the various kinds of intermitting fevers, is confirmed from what we observed in the reduplication of the fits. For whether the febrile matter, namely, the occasional and exciting cause, produces the reduplications of the paroxysms by its excess or too great activity; in which case Sydenham^b has remarked, that the adventitious fit anticipates the time of the original: or whether the patient's strength, being too much weakened, is unable to expel from the body, or subdue and render inactive, that which excited the fit, and which causes a repetition of it in order to subdue what remains; in which case the adventitious fit follows after, and is milder than the original, as the same author observes: yet in either of these cases the new paroxysms follow the nature of the original; and in a double tertian, for example, all the paroxysms are true tertian fevers, which are observed to correspond to each other in the hours of their accessions every other day, in their anticipation or retardation, and various symptoms. The same is also true of triplicate quartan fevers. It is therefore again evident, that the exciting or occasional cause, though often renewed and rendered active in the same interval of time, does yet produce the same intermitting fever which is determined

^b Sect. i. cap. 5. p. 96, 97.

ned by the pre-disposing cause.

When therefore an autumnal tertian degenerates into a quartan (for vernal ones seldom or never degenerate), it seems very probable, that this does not happen from the exciting causes being increased or rendered more active by a longer interval of time, but from a change in the pre-disposing cause itself. Hence again it is evident, that these pre-disposing causes are different in every kind of intermitting fevers; and yet that they have a great affinity, since they are frequently observed to change one into the other.

But what this pre-disposing cause is in intermitting fevers, and whether it resides in the solid or fluid part of the body or in both, and wherein consists the particular difference with respect to these causes of the several kinds of intermitting fevers, seems very difficult to explain. For these causes may lie so much concealed in the body, as not to manifest themselves by any sign, until the occasional or exciting cause puts them into action. For when a person has been a long time afflicted with a quartan, and is afterwards cured so as to be perfectly well in every function, yet either from over-feeding upon food of difficult digestion, by hard drinking, the cold air, passions of the mind, &c. there is frequently occasioned a relapse. This has been observed by Celsus, where he treats of the cure of a quartan, and gives the following admonition: *If the fever ceases, the day ought to be a long time remembered, and in it (more especially) to avoid cold, heat, crudities, and lassitude. For the disease easily returns, unless the patient lives for some time as if he was afraid of it, after being cured*ⁱ.

There have been various opinions of authors upon this subject. Galen accuses the bile as the cause of a tertian fever, and phlegm as the cause in a quotidian fever; but the cause of a quartan, which often continues so long, he makes to be an atrabiliary humour, the seat of which he supposes to be fixed in the spleen,

as

ⁱ Si febris quievit, diu meminisse ejus diei convenit; eoque vitare frigus, calorem, cruditatem, lassitudinem. Facile enim revertitur, nisi a sano quoque aliquamdiu timetur. *Lib. iii. cap. 16. p. 147.*

appears from several passages of his writings. Helmont^k, after Fernelius, places the seat of the cause of intermitting fevers about the stomach, duodenum, and pancreas. Others again have sought for it in the abdominal glands, &c. But I believe it will appear different from what has been said, that they did not distinguish the *occasional* from the *pre-disposing* causes; and that even sometimes they have esteemed the alterations of the humours *produced* by the fever, for the cause of it.

But if we consider what has been said at §. 755, 756. it will appear sufficiently probable, that the pre-disposing cause is rather seated in the most subtle fluid; in the smallest vessels through which that fluid moves; or else in the common origin of them all, the encephalon. For those appearances of the invading erysipelatous teach us, that there is some alteration made in these parts: for in infants, who have the nervous system so very tender and irritable, convulsions frequently arise; and that only sudden and violent passions of the mind have sometimes produced, and again removed, intermitting fevers. But how much alterations of the mind affect the spirits and nerves, and what alterations they can produce in the encephalon, is known to every body. The Peruvian bark, which is of so great use in strengthening the nervous system, and allaying inordinate motions of the spirits, as well as subduing the violence of all intermitting fevers, is another argument in favour of this opinion, even though it produces no sensible evacuations; and therefore this medicine seems to act only upon the pre-disposing cause. Again, palsies, epilepsies, and other diseases of the nervous system, are most happily cured by intermitting fevers. Inunctions of the spina dorsa, with the most penetrating aromatic ointments, have very frequently proved useful in the cure of intermitting fevers (as we shall declare hereafter at §. 768.) the efficacy of which ointments is likewise well known in other nervous diseases.

This opinion seems also to be confirmed by the observations

servations of Sydenham¹, which we mentioned before at §. 751. namely, that, in one kind of epidemical intermitting fevers, the fits came on without a rigor and shivering; but the patients were afflicted with perfectly the same symptoms as if they had been taken with a true apoplexy. In that case, the cause of the fever being stronger, seems not only to have disturbed the functions of the encephalon, but likewise to have suppressed them entirely for a time. The fever, concealed under this mask, was discovered by Sydenham, from the urine being intensely red, and depositing a lateritious sediment: in consequence of which he happily cured it by the use of the bark; but he observes, that evacuations recommended for the cure of an apoplexy were here prejudicial.

But now, as in the nerves serving for the motion of the muscles, or in the origin of them, or in the very subtle fluid moved through them, such a change may happen in a certain space of time as to cause the trembling, weakness, weariness, &c. which attend in the beginning of the febrile paroxysm; so it seems probable, that the same thing may take place in the sensitive nerves, and then the most troublesome pains will afflict the patient at certain periods. I was lately consulted by a certain nobleman for a pain in one side of the head, which returned every day at the same hour, continued to afflict the patient severely for eight hours, and then, gradually decreasing, at length perfectly vanished. Epithems and blisters were applied to the head, epispastics to the feet, with purge &c. without any use; but upon exhibiting the Peruvian bark, this most troublesome disorder immediately ceased: but when the pain began, he pointed out the part first affected, to be where a branch of the fifth pair of nerves comes through the foramen above the orbit, and from thence by degrees the pain spread itself throughout the whole half of the head; but the mean time no alteration was observable in the pulse while the pain attended, the patient being perfectly well in all other respects. More cases of the like nature

ure have occurred to me, but more especially the following very remarkable one deserves to be mentioned. A healthy, strong, middle-aged man, was daily invaded, at the same hour, with a troublesome pain in the place before-mentioned, above the orbit of the left eye, where the nerve passes out through a foramen of the os frontis; after some time, the left eye began to look red, and to run down with tears; afterwards he had a sense as if the eye was ready to be thrust out of the orbit, with such a pain as made him almost raving. After some hours all these symptoms ceased, and nothing at all appeared altered or amiss in the eye. I ordered a vein to be opened, gave cooling purges, applied cupping-glasses frequently to the nape of the neck, with blisters, &c. but all to no purpose. But, to be better acquainted with this wonderful disorder, I took care to be present with the patient at the time when he knew his pain was about to return; and though I found all the symptoms before mentioned, yet I could perceive no alteration in the pulse by examining at the wrist. The patient observed, while I sat by him, that he perceived a violent pulsation in the larger canthus of the eye. I therefore applied the end of my little finger to the artery, which runs down pretty conspicuous about the greater canthus, while at the same time I felt the pulse at the wrist with my other hand; and then I plainly perceived, that the artery in the canthus of the eye beat much swifter and stronger than it is naturally used to do. I therefore judged the patient to be afflicted with an intermitting fever, but such as was topical or confined to a particular part; and accordingly I happily cured it by exhibiting the Peruvian bark: and from this case I learnt afterwards, to make use of the same medicines in other disorders of the like kind.

It may be therefore asked, whether a true intermitting fever does not sometimes occupy a particular part only, without invading the whole body? It was proved in the commentaries to §. 371. where we defined an inflammation, that such a topical fever really obtains as disorders the part affected only, without in-

juring the whole body; the alteration of the pulse being observable only in the arteries of the part inflamed. And what has been here said plainly demonstrates, that sometimes the same thing is true also in intermitting fevers. But medical history supplies us with more observations of the like kind, which seem to confirm this. Thus a person was every day, for the space of six weeks, taken about seven o'clock of the morning with a violent coldness in the right arm, the rest of the body preserving its natural heat: by eight o'clock of the morning, there was a rigor and trembling of the hand and fingers; after three hours more, a violent heat followed; but by twelve o'clock, all the symptoms disappeared, and returned again the next day in the same order^m. A kind of anomalous intermitting fever followed after a tertian had been changed by very hot medicines into a most acute fever; which anomalous intermittent afflicted the virgin, who was about twenty-two years old, several times in a day. In this case, some doses of the Peruvian bark were given; and afterwards, among many other anomalous symptoms, one leg or other was observed every day at the same hour to tremble, and afterwards grow hot or sweat; while in the mean time no such disorder appeared in the rest of the bodyⁿ. Another case of the like kind may be also read in another volume of the same essays^o.

Now this pre-disposing cause of intermitting fevers, which from what has been said is probably seated in the most subtle fluid, in the smallest vessels which contain it, or their origin, may there be put into action by various concurring causes. For a sudden admission of external cold, the taking of indigestible food, violent passions of the mind, disturbances raised in the body by purges, and many other things of the like kind, may have this effect; as every physician knows from daily observation. Thus Sydenham^p has remarked, that purging is required after the cure of autumnal intermitting fevers; and that, this being neglected,

^m Miscell. Curios. dec. 1. ann. 3. p. 381. ⁿ Medical Essays, Vol. I. p. 295, 296. ^o Vol. II. p. 302. ^p Sect. i. cap. 5. p. 118.

Whether a return of the fever is to be feared, or other diseases often more dangerous: but at the same time the cautions, that a purgative should be given at going to sleep, after the operation of the purge is over; by which means a return of the febrile paroxysm is prevented from arising from the disturbance that is excited even by the mildest purges.

But whether or not does this pre-disposing cause require another occasional cause to reduce it into action? This is certainly a matter of doubt; though it cannot be denied, that the pre-disposing cause may be excited by accessory causes, even at a time when it seems quiet and inactive. For when a healthy person is taken with a quartan fever, which hath as yet ran through but few paroxysms, and those not violent, having hitherto produced no great alteration in the solid and fluid parts of the body; in that case, the most expert physician cannot discover any thing amiss just before the approach of the fit. Moreover, those occasional causes, without the action of the pre-disposing cause, do not seem able to excite the fit at any time, but only to admit or fix its returns; whence Celsus, as we said before, orders, that those who have been cured of a quartan should be careful of themselves on those days when the fit used to return; thus intimating, that the danger of the return is not so much to be feared upon the other days. I have observed a remarkable case which happened in confirmation of this. A person had been afflicted with a quartan the whole winter; and the fever by degrees went off by the warmth of the spring following, without the use of the bark, leaving the body in perfect health. The patient now had been free from the fever for five months, when, in fishing with his friends, some of them for the sake of mirth threw the net over him, after it was dragged to the shore. The patient soon after grew cold, began to tremble, and had a fit of the intermitting fever; which afterwards returning every fourth day, held him in that manner for several weeks. But as this patient had been admonished to take care of himself for the future upon those days on which the fits were used.

to return, although the fever was now cured, he carefully observed the caution for three weeks; and upon marking every third day in his almanack with an asterisk, he by that means found, that this misfortune befel him upon the day on which the quartan would have invaded if it had still continued.

It seems from hence, that we may conclude, the pre-disposing cause becomes fit to be put in action at various intervals of time in various intermittents, and often at a minute's warning; and it likewise appears to be frequently put in action, even though the most diligent observation can discover nothing in the body capable of performing the part of an occasional cause. Whether or not, therefore, is this pre-disposing cause itself able to excite the fever? or does there lie concealed in the same place with the pre-disposing cause, a cause capable of exciting that, but only in a determinate space of time? We are certain, that if the last be admitted, nobody can distinguish the exciting from the pre-disposing cause; since both of them are seated in the most subtle fluid, in the smallest vessels, or in the common origin of them, and manifest themselves only from their effects.

It is indeed true, that many changes happen in the human body in a healthy state in a determinate space of time; thus hunger, sleepiness, watching, &c. are observed, in many people, to keep their usual hours. It also seems very probable, that the humours separated from the blood, as the bile, pancreatic juice, saliva, mucus, &c. may be collected together in certain determinate quantities within a limited space of time: There are also many more things of the like kind which may be supposed, in order to explain how some occasional cause, being renewed, should put in action the pre-disposing cause of the fever after a certain determinate space of time. But if we thoroughly examine such hypotheses as are founded upon these principles, it will be sufficiently evident that they do not agree or conform to the appearances observed in intermitting fevers. For although whatever is lodged in the stomach, intestines, or adjacent viscera, be expelled by vomits

omits or purges, the intermitting fever is not cured by that means; but, on the contrary, it frequently becomes more stubborn and difficult to cure by such a treatment, as Sydenham^a has remarked. But what is more, even a purge given too early to a patient after recovering from an intermitting fever, before a due time has elapsed after the fever, causes it to return worse than before^r. And although, when an intermitting fever ceases by the use of the Peruvian bark, some may believe, that then the matter is accumulated which used to discharge itself by sweats and other evacuations after each paroxysm, and thence they may judge a purging medicine to be useful; yet Sydenham^s cautions us, that there is danger of a return from the slightest purge, and even from an emollient clyster of sugared milk. When a quartan continues on its course, exactly keeping its returns, through the middle of a salivation; and when a vernal tertian arises in the midst of a salivation, as I have observed it; I must confess myself utterly unable to conceive how any fomes or irritating matter should be collected in the body in a certain space of time so as to excite the fits regularly under so great disturbances of the body, and while all the humours were dissolved by the force of mercury.

From all this therefore we may conclude the opinion to be probable which places the cause of intermitting fevers in the most subtle fluid, in the vessels which contain that fluid, or in the common origin of them both, the encephalon; and that this cause may be brought into action in a certain space of time: but in the meantime there appears no necessity for supposing a latent fomes to be collected in the interval betwixt the paroxysms, in order to put the latent cause of the fever into action; since observations teach us, that frequently a little before the fit there is nothing at all to be observed amiss either in the solid or fluid parts of the body, nor does there appear any sign of injury to the functions, though they are almost all of them soon after disturbed.

But

^a Sect. i. cap. 5. p. 114.
Respons. p. 386.

^r Ibid. p. 118.

^s Epist. 1.

But what the alteration is in this most subtle fluid in the smallest vessels, or in the encephalon, which constitutes this cause of intermitting fevers; and why it is renewed or put in action only at certain periods or intervals of time; I must confess myself, with Sydenham^t and other most eminent physicians, to be perfectly ignorant. I have therefore laid down only such principles as seem to be taught us by observations or facts; and if I am under any mistake, I am so far excusable at least, as I profess myself ready to be taught more or better, not only in these, but in all other particulars.

But although this latent cause of the intermitting fever does not seem to require the collection of any humours, in order to renew the paroxysm at a certain interval or a determinate space of time; yet it cannot be denied, that the morbid humours collected may occasion those latent causes to afflict the patient more violently. Thus in autumnal tertians, when corrupt bile is lodged in the first passages, after that is discharged either spontaneously or by art, the next fit usually becomes much milder; and therefore these corrupt humours may concur with the latent cause, which yet might be capable of acting of itself without them. For if indigestible food, sudden cold, weariness, &c. may excite the cause into action, after it has lain a long time dormant, why may not its power or efficacy be increased by the same means at the time when it is of itself able to act? But whether or not does the retardation or anticipation of the fits always arise from these concurring causes? Hardly, it would seem. It is indeed true, that, about the time when the paroxysm usually invades, the latent cause is in a manner more irritable, if that expression may be allowed, as is evident from what has been said before; and therefore it does not seem altogether improbable, that from a collection of foul humours the fit may be excited before its usual time: but yet sometimes also the paroxysms arise sooner or later in fevers, where there are no signs of any cacochymy discoverable, and in such a manner as

to

appear before or after the usual time at every return; and therefore this regular anticipation or retardation of the fit, should be rather ascribed to the latent causes of the intermitting fever itself. The truth of this is confirmed by what ^u Sydenham observes: "When numbers are seized at the same time, we may generally observe that the fits come exactly in the same manner, and at the same hour of the day, a little sooner, or later perhaps, unless this disorder be disturbed in some persons by remedies that either hasten or retard the coming of the fit." For certainly it seems hardly credible, that morbid humours should be collected precisely in the same interval of time, in so many patients differing in age, sex, way of life, habit, and the like, in such a manner, that the renewal of the paroxysms may be ascribed to this cause. Hence also Galen observes, that an anticipation of the fit only, ought not to be esteemed an increase of the disease; which yet must always be the case if the fits return sooner or at shorter intervals, from an accumulation of morbid humours. For thus he expresses himself: *An anticipation only, is not in itself a sufficient sign of increase, as it often proceeds rather from the nature of the disease than from an increase of it; and this more especially, as quartans, tertians, and even quotidian fevers, have been seen to anticipate the times of their invasion in this manner, even when the disorder has been perfectly removed*^w.

An intermitting fever seems therefore to arise from an epidemical contagion, or material cause affecting the spirits, nerves, or their common origin, in such a manner as to cause a return of the fits at stated times. But yet it must be owned, that, by the fever raised, morbid humours which before existed, or which have been formed or collected during the fever, are expelled from the body, and a great many obstructions in the viscera are removed; and therefore these
fevers

^u Ibid. p. 104.

^w Nam anticipatio sola per se ipsam non est sufficiens signum incrementi, quod sæpe morbi proprietatem consequitur potius, quam quod ejus incrementum sit: quum et quartani et tertiani, et quotidiani circitus quidam usque ad integram solutionem ita anticipare visi fuerint: *Crisibus, lib. i. cap. 3. Charter. Tom. VIII.*

fevers often exercise the virtue of medicines with respect to other diseases; and yet this fever seems capable of continuing without those diseases, as long as that impression or affection of the spirits shall remain. It may be asked therefore, why such intermitting fevers, appearing without any remarkable defect either in the solid or fluid parts of the body, ought not to be termed fevers of the spirits? At least Galen gives us the following observation upon this head: *But the physician ought to distinguish first in each patient, if the fever begins, without affecting any particular part, from a putrefaction of the humours, or from an alteration of the spirits only* *.

But we have already seen, that this character or epidemical impression may lie dormant in such a manner upon the spirits, as not to manifest itself by any sign; and yet that it may be afterwards stirred up by some occasional cause, and again (which is principally to be remarked) by its own proper force excite new febrile paroxysms, without any renewal of the occasional cause which stirred up the dormant or inactive impression. Hence again the morbid impression of the intermitting fever seems by degrees to lessen, so that at length it can no longer operate upon the nerves; and yet that this impression continues a long time capable of being stirred up again, so as to renew its action by many other different causes.

The Peruvian bark seems to act immediately upon this morbid impression, as it so often cures intermitting fevers without any evacuations or any sensible alteration; yet so that, unless its cause be often repeated to entirely remove the disease, it only suppresses it, or causes a truce for a time, as we shall observe more at large hereafter at §. 767.

But amongst those causes which usually excite that dormant impression of the disease, which is not yet perfectly extinguished, cold is observed to be more powerful than the rest. For we are certain, that a vio-

lenti

* Distinguere autem oportet in singulis ægrotantibus, primum quidem si sine loco affecto febris sit, ex humorum putredine, vel (μονω τῷ πνεύματι τραπέντι) solo spiritu alterato. *De Crisibus, lib. ii. cap. Charter Tom. VIII. p. 416.*

ent and sudden cold applied to the body makes a person tremble, look pale, and grow stiff; and therefore many symptoms are thus excited, which attend in the beginning of an intermitting fever, (§. 749). Even Celsus seems to hope for the change of a flow continual into an intermitting fever from cold, as we said before upon another occasion in the comment to §. 589. For when there is no room to relieve such a fever by food or medicines, he would have the physician endeavour to change the disease, as the only means left. Therefore, (says he,) the body is to be often bathed in cold water mixed with oil, because sometimes by this means a horror is produced, and a new motion is begun in the body, from whence as the body afterwards acquires a greater heat, there follows also a remission of the fever." Perhaps this may be the reason why vernal intermittents end sooner as they are opposed by the summer-heats; but autumnal fevers are more obstinate from the continual increase of the cold; and quartan fevers are almost entirely cured by the warmth of the spring only.

But this morbid impression producing intermitting fevers is often so strongly fixed, that it can hardly be removed by any remedies. Its activity may be indeed suspended for a time by giving the bark, yet so that it will always return afterwards. This has been observed by Sydenham^y; who says, that in this case it is the part of a prudent physician, not obstinately to persist in the use of bark, but to attack the fever by other medicines. I have known a quartan continue for several whole years, ceasing at times for several weeks, either spontaneously, or by the use of the bark, but returning again afterwards. N. Massa^z saw a woman at Rome who had been afflicted with a quartan for twenty-two years. But such obstinate fevers of this kind as exceed the course of a year, I do not remember to have met with, unless in cacochemical bodies, where the viscera, especially those of the abdomen, were obstructed; whence there almost constantly attends a swelling of the abdomen, with a yellow colour
of

^y Epist. 1. Responsorio p. 385.

^z Etmuller. Tom. II. p. 309.

of the skin, &c. But as we before observed, that the fever may be excited again after it is dormant, when bacon or the like indigestible foods are taken in large quantities, it seems not improbable that something of the like kind occasions the prolongation of the cause of these fevers. For if the body is cacochemical before the intermitting fever began, and the viscera are obstructed, or if the like disorders are produced by the fever itself, (see §. 753.) in that case the due preparation of the ingested aliments will be deficient; and therefore the like disorders may thus arise from a deficiency in the digestive powers, as do those which happen in healthy but weaker people from taking food of too difficult a digestion. Hence the reason is evident, why, in such a case, an intermitting fever, which in its own nature ought to lessen, at length increases; or else being dormant is excited again, and thus runs out to a long space of time. Perhaps also this morbid impression is more difficultly expunged, as it has been of longer continuance.

It may be therefore asked, why the fits sometimes are doubled, when the latent morbid impression of a tertian fever (for example) becomes active in its own nature only every other day? Certainly this is from the same cause, namely, that unknown epidemical something which both produces the tertian, and may make it fall out upon another day. Moreover, it seems very probable, that, even upon the days which are free from the fits, there is a like disposition, which is perhaps not capable of coming into action of itself, yet may be excited by the accession of other causes; and then it may renew the fits by its own proper force, though the causes are absent which first excited it into action; and this after the same manner as an intermitting fever, ceasing spontaneously, is renewed again by the like causes, as we said before. And in favour of this opinion there are many arguments: Thus great errors committed in the diet, not only produce more violent fits of a quartan, but also turn a simple quartan into a double or triplicate one, as we are taught from daily observations in practice. Autumnal fevers,

in

in which the offending matter is usually more copious and stubborn than can well be subdued and expelled by the fever raised by nature, much more frequently double their fits than vernal fevers, in which these reduplications are seldom observed: even from the same cause, such fevers often exactly resemble the nature of continual fevers, from the prolongation and reduplication of the fits, as we said before at §. 748. But in the mean time, as we have already observed, such redoubled fevers retain the nature and disposition of their original fits; so that a triplicate quartan consists of three distinct quartans, a double tertian is composed of two distinct tertians, &c.

From what has been hitherto said, therefore, we may conclude, that the distinct and determinate characteristic, or primary morbid impression, of intermitting fevers, lies concealed in the nervous spirits, in the nerves themselves, or in the common origin of them both: that this impression may be irritated by morbid humours collected together, so as to produce stronger and more violent fits; and that it may be even excited into action by the same causes when dormant: yet that it does not always require a fomes or collection of morbid humours to be made in the interval betwixt the two fits, in order to put it into action; but that it is capable of renewing the fits by its own proper force. At the same time it also seems probable, that this impression has the same disposition to act upon the intermediate days betwixt the fits; and that by the accession of other causes it may be reduced into action; and besides this, it may likewise continue to act when those causes are abolished.

§. 758. **T**HE cure therefore requires us to make use of medicines which are aperient, saline, alkaline, aromatic, minerals, diluents, soft oils; with heat, motion, fomentation, and frictions, applied at the time when the fever is off, or even in the cold fit or first stage described at §. 749.

In the cure of intermitting fevers, the first thing to be determined is the patient's diet. By the term *diet* we understand a due moderation of the six non-naturals; the air, food and drink, sleep and vigilance, exercise and rest of body, passions of the mind, and such things as ought either to be retained or expelled from the body^a. But since it appears, from what has been said before, that a cold air is injurious to such patients, and that the fever is thereby often renewed after it is once allayed; therefore it will be convenient to have the air of such a moderate warmth as is usual in the spring-time, which may be easily procured even in the midst of winter by the use of fires. The food and drink, again, ought to be such as we have described before at §. 599: but with this difference as to intermitting fevers, that betwixt the two fits when the fever is perfectly off, and almost all the functions are restored to their healthy state, the strongest sorts may be allowed; and the more as the interval is longer betwixt the fits, and especially when it happens to be the winter season, (see §. 602, n^o 5.) Moreover, as these fevers are sometimes of long duration, more especially quartans, it is highly necessary to keep up the patient's strength, that, in the words of Celsus^b, *quod diu sustinendum est, corpus facile sustineat* "the body may be enabled easily to support what must be sustained for a long time." Hence the reason is evident, why more nourishing food and drink is convenient in these than in continual fevers. But in the mean time all fat meats, every thing salted and dried in the smoke, and the like, ought to be avoided; as the body would be oppressed by the more crude chyle formed from thence; and as merely from such foods taken in too great a quantity, a fever has been observed to be excited even in healthy bodies: (see §. 580, n^o 1.) At the same time care must be taken not to give food in these fevers about the time when a new fit is expected; for then most of the functions of the body being disturbed or injured, we cannot expect due assimilation or digestion of the nourishment taken in.

^a H. Boerh. Institut. sect. 745.

^b Lib. iii. cap. 15. p. 145.

This has been well observed by Hippocrates, when he says, *To patients ill of intermitting and not of continual fevers, nourishment must be given after the accession of the fit; the estimate being made as near as possible, lest the fever should come on when the nourishment lately taken in, instead of when it is perfectly concocted*.^c Moderate exercise of body betwixt the fits is of great use, because thereby the assimilation of the ingested aliments, and the natural excretions by stool, urine, and perspiration, are happily promoted. Hence Celsus^d orders, in the cure of a quartan, after the patient is sufficiently rested, to walk the next day, to use exercise, inunctions, and strong frictions; he even believed it would be useful, *si daretur opera, ut in ipsa exercitatione tempus febris incurrat, sic enim sæpe illa scutitur*; “for the patient to endeavour to let the time of the fit fall within the time of the exercise, for by that means the fit is often shook off.” But when the patient’s weakness forbids exercise, he would have carriage made use of; but if that also is not tolerable, he recommends frictions. As to the sleep, it should be longer than usual, that the body may be refreshed and rest after being fatigued and shook by the febrile paroxysm. But that the passions of the mind ought to be moderate, is sufficiently evident.

Vernal intermitting fevers usually give way with ease, merely to a due regimen of the six non-naturals, even without the assistance of other remedies, as we are taught from daily observation. Hence also Sydenham^e would have these fevers left to their own disposition; unless the patient importunes the physician for medicines; for he had never seen any patient perish of a vernal intermittent: and therefore he rather chuses to do nothing; and more especially he condemns the use of evacuating medicines, since by these he had observed intermittent fevers rendered much more obstinate.

X 2

But

Quoscunque ægotantes non continenter febres detinent, sed intermittentesprehendunt, his post accessionem cibi exhibendi; conjecturata, ne quando a recenti alimento, sed jam concoctis cibis, febris incipiat. *De Affectionibus, cap. 16. Charter. Tom. VII. p. 637.*

^d Lib. iii. cap. 15. p. 146.

^e Sect. i. cap. 5. p. 103a.

But in autumnal intermittents, medicines are more especially necessary; but different during the time of the paroxysm, from what are required when the fever is absent. Moreover, as the fit of every intermitting fever is distinguished into three stages (see §. 749, 750, 751.) therefore a difference in the cure is necessary according to each of these. But in this aphorism we treat concerning those medicines, which are convenient at the time when the fever is absent; as also in the cold fit, or first stage of intermitting fevers.

From what has been said in the commentaries to §. 558, it is evident that a fever is an instrument of nature, whereby she endeavours to separate the impure from the pure parts of the humours; and that this is frequently excited, in order to expel from the body some foreign matter repugnant to health, or else to change the blood into a new disposition; and that therefore physicians of the greatest repute in practice are not always so much solicitous about removing the fever, as in keeping it under a due moderation only, that it may neither be too languid, nor offer injury by too great violence. But all these particulars are likewise true in an intermitting fever; and it there appeared, that the most difficult and obstinate diseases have sometimes been cured by intermitting fevers. When the most fluid parts of the blood have been dissipated after summer-heats, the bile being more acrid and redundant, and likewise more tenacious, is often collected and lodged about the præcordia; and then autumnal intermitting fevers usually spread epidemically: by which, if rightly treated, the bilious corrupt humours are dissolved and expelled; obstructions of the viscera are most happily opened, which derive their origin from a more thick and less pervious blood; till at length the most perfect state of health is restored. But, on the contrary, it appears by many fatal instances, that such fevers being unskilfully suppressed by the Peruvian bark, before the material cause, which ought to be subdued and expelled, is removed, the patients have languished, have acquired an ill state of the solids and fluids, with the worst obstructions of the abdominal

abdominal viscera, and even frequently have perished thereby. Sydenham observed an autumnal tertian invaded epidemically at the same time with a continual fever, attended almost with the like symptoms, and curable nearly in the same method; from whence he concludes, "That this continued fever appeared to be a kind of compendium of the intermittent; as, on the other hand, each single fit of the intermittent was a kind of compendium of the continued fever. The difference between them consisted chiefly in this; That the continued fever finished its period of effervescence all at once, in the same constant course; but the intermittent, by fits, at different times." But this great physician had learnt by a careful attention to diseases, that the continual fever itself most happily subdued its own material cause; and therefore he reasonably expected the same effect from intermitting fevers. But all this is confirmed from what has been said before concerning the effects of a fever (§. 587.); for it there appeared, that the fever itself produced an irritation of the stagnant humours, an intimate mixture of them all, and a concoction or subduing of the resisting matter, &c. Moreover, it was proved at §. 753, that an intermitting fever acts by resolving and attenuating, while it runs through its stages; and that therefore it often frees the body from inveterate disorders, as we said at §. 754.

The best method of all, therefore, of curing these fevers, seems to be that which conspires together with the fever itself, to resolve what is concentered, to open the obstructed vessels, and by that means to restore the equable circulation of the humours through all the vessels. It will be therefore useful for the patient to take such things betwixt the fits, when the fever is absent, as are by physicians termed *aperients* from their effects; of which a variety may be chosen, according to the diversity of the obstacle to be removed by the fever assisted with these medicines. But these remedies are used with so much greater efficacy in the body of the patient, as, in the febrile paroxysm next following,

X 3

they

they will be more rapidly moved through all the vessels. Hence also physicians commonly use motion, or exercise of body, with heat and frictions, at the time when the fever is off, that by increasing the motion of the humours through the vessels, the efficacy of the remedies might be likewise increased: for the humours being dissolved by saline, alkaline, and mineral medicines (see §. 135.), together with diluents (§. 134.), while all the emissaries are relaxed with fomentations and soft oily medicines, the body is thus disposed to easily separate and expel, by the febrile paroxysm about to follow, the offending matter lodged in the body, for the removal of which the fever itself was intended by nature. But different remedies are convenient, according to the different season of the year, age, and habit of the patient, epidemical constitution, &c. For in the spring-time, and in juvenile patients, the hotter medicines must not be used. Autumnal fevers, on the other hand, more especially those which are prolonged until the winter, require warmer medicines, especially if the patient's strength is weakened by the disease, or if the body languishes by an advancing old age; for then the radix contrayerva, serpentaria Virginiana, saffron, and the like most penetrating aromatics, are of the greatest use. In cold phlegmatic habits, alkaline salts are the best aperients, which yet are often injurious to warm and bilious people; and therefore those of the saline neutral kind are preferred, as nitre, sal polychrest, tartarus vitriolatus, &c. But if there are signs of a putrefaction to be feared (§. 85, 86), medicines which are acid and oily, as spiritus nitri dulcis, juice of elder-berries, currants, and the like, may be useful of themselves. Thus in such epidemical intermitting fevers as usually arise in autumn after the summer-heats, with a yellowish colour of the skin and eyes, and a yellowish red colour of the urine, with a weight and sense of anguish about the præcordia indicating an obstruction of the liver with a bilious cacochymy, emollient and diluent medicines are of the greatest use, such as decoctions of dandelion, succory, roots of viper's grass, common grass, &c. mixed with sal polychrest

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chrest and honey, and drank plentifully when the fever is off, and afterwards put into a violent motion thro' all the vessels by the febrile paroxysm, have most happily opened the obstructions of the viscera, dissolved and rendered moveable the bilious matter, which at length has been expelled from the body either spontaneously, or by the use of a gentle vomit or purge.

But although aperient and attenuating medicines seem to be generally of the greatest use for the cure of intermitting fevers, yet there are cases which sometimes occur, where astringents and incrassating medicines, with such things as strengthen the solid parts of the body, are rather needful. For in tender girls, and in people of a very weak habit, all the humours are sometimes so much dissolved by intermitting fevers, that they waste with profuse sweats, not only in the end of the febrile fits, but also at any other time, and especially in their sleep; and I have found the English more especially inclined to these sweats, when they have been afflicted with intermitting fevers. But it is evident enough, that attenuating and diluent medicines must be here prejudicial, since there is already too great a weakness of the solid parts, and too great a dissolution of the humours. In this case the cortex Peruvianus, tamarisci, capparidis, with spices infused in rough red wine, afford a very good medicine: for intermitting fevers are seldom cured in such habits but by the Peruvian bark; or only respites are introduced, that the body may be in the mean time strengthened.

Various remedies are enumerated in the *Materia Medica* corresponding to the number of the present aphorism, which act by opening the vessels and attenuating the humours; and from whence such may be chosen as are most agreeable to the nature of the disease, constitution of the patient, &c.

But all these, though they are chiefly of use at the time when the patient is free from the fit, yet they may be serviceable in the beginning of the fit itself, the symptoms of which we enumerated at §. 749. For it there appeared, that this is the most dangerous stage of intermitting fevers, because the free motion of the blood

blood is impeded through the extremities of the arteries, and becoming impervious it is accumulated about the right side of the heart and lungs. Such things therefore as attenuate and dilute the blood, relax and open the vessels, will be then of the greatest use, as we said before at §. 625. But the more heating medicines, and such as have a violent stimulus, are not to be used in this stage of the fever, for the reasons before given at §. 624. the use of these being safer betwixt the fits, when the fever is absent. At the same time also it appears, that by the use of aperient, attenuating, diluent, and other medicines, while the fever is off, the humours and vessels are so disposed, that there is less danger from a stagnation during the time of the cold fit; and afterwards those parts of the humours which began to concrete by stagnation, will be more easily dissolved again in the time of the hot fit of the fever.

This therefore seems to be the general method of curing intermitting fevers, namely, to procure a greater dissolution of the humours betwixt the fits, when the fever is off; by mild stimulating aromatics, exercise, and frictions, to increase the motion of the humours through the vessels; and, at the same time, that all the emunctories of the body may be set open, that such parts of the morbid humours may escape, as have been subdued by the fever itself, and which are usually expelled various ways from the body.

§. 759. **M**OREOVER, a purge or vomit is often useful to evacuate the redundant morbid humours in the first passages, given long enough before the fit to have finished the operation before it invades. That such an evacuation is necessary to be made, is known from the diet, and from the preceding symptoms and disorders, a nausea, vomiting, belching, distension or swelling, vapours from the stomach, a foulness of the tongue, fauces, and palate; aversion to food, bitterness of the mouth, vertigo with darkness; and after the operation of the purge or vomit is over,

an opiate is to be given to allay the disturbance before the fever invades.

It frequently happens in intermitting fevers, that there is a collection of foul humours in the first passages, whether they pre-existed before the fever, or arose from the food taken in during the time of the fever, and not well digested or changed by the humours, more especially the bile collected in these passages during the fever. That such a collection of foul humours ought to be removed, no one can doubt; since the lodgment of these here usually destroys the whole appetite, and, being rendered much worse by stagnating, may produce a putrid diarrhœa or dysentery. But since vomits and purges are rather prejudicial for intermitting fevers, unless such a collection of foul humours is present, as we shall declare hereafter at §. 761. therefore the physician must attend to those signs which denote that such humours are lodged in the first passages.

There may be reason to suspect such clogging humours, if the patient has indulged himself in a richer sort of diet, and especially in fat, glutinous, or other food of difficult digestion. But the preceding diseases which usually afflict those who are oppressed with such foul humours, will likewise confirm this in such a patient. Sometimes, in epidemical intermitting fevers, there is observed such a common or general disposition, that corrupt bile fluctuates about the præcordia in all patients indifferently, which kind of fevers have been observed by Sydenham⁸; and then there can be no room to doubt of the usefulness of a vomit or purge. But when such humours are lodged in the first passages, they afford certain signs or symptoms whereby their presence may be known; namely, a nausea, vomiting, belching, vapours from the stomach, &c. as we said more at large when we treated of putrid humours in the first passages at §. 85. and at §. 642, where we treated of nausea in fevers. But there is more especially used to attend at that time,

anxiety

anxiety and a troublesome sense of tightness about the præcordia; and even sometimes the hypochondria are swelled and protuberant, which Hippocrates^b ranks among the signs of a future flux from the bowels in fevers. But by what passages these accumulated humours may be most conveniently discharged, the same symptoms likewise generally demonstrate: for the nausea, vomiting, bitterness of the mouth, giddiness, with a darkness of the sight, &c. indicate vomiting; an obtuse pain of the loins, rumbling noise and flatus of the bowels, with a distension of the abdomen, denote that these humours rather incline downward by stool. Hence Hippocrates observes (as we said before upon another occasion in the comment to §. 594, n^o 2.) “That in those febrile patients who have anxiety, with
 “a pain in the upper orifice of the stomach, and spitting, vomiting ensues; but in those who have belchings, flatus, with a noise and swelling of the abdomen, in these happens a flux from the bowels.” But frequently these humours are expelled both upwards and downwards at the same time; for vomits given generally excite stools, and purges frequently excite vomiting, more especially if such foul humours are collected as well in the stomach as in the intestines. But if in the beginning of the febrile paroxysms, when a vomiting and nausea generally attend, (see §. 749.) part of these humours are expelled, we may be then more certain that such artificial evacuations must be infallibly useful. *In those evacuations which are made by medicines, the discharge of such humours is to be promoted as incline spontaneously to be dischargedⁱ.*

When therefore it appears from the signs before mentioned, that there is a redundant collection of humours in the first passages, it ought to be removed as soon as possible; for, as long as that continues, the loss of appetite and sickness of stomach will prevent the patients from taking due nourishment at the time when the fever is off, so as to recruit their strength.

But

^b Aphor. 73. sect. iv. Charter. Tom. IX. p. 183.

ⁱ In iis, quæ medicamento fiunt, purgationibus, talia e corpore educenda sunt, quæ etiam sponte produntia juvant. Hippocrat. Aphor. 2. sect. iv. Charter. Tom. IX. p. 132.

But at what time a purging or vomiting medicine may be best taken, is not yet agreed on amongst physicians. Sydenham^k seems to have given them at the time when the fever was absent, in such a manner that the operation of the medicine might be over before the invasion of the next fit. Yet he sometimes gave a purge to loosen the bowels when the fever was present; but then he did not give it so much to expel the redundant humours from the first passages, as to disturb the ordinary course of the febrile paroxysms, concerning which we shall treat under the aphorism next following.

But since during the time of the cold fit a nausea and vomiting frequently attend, (see §. 749.) many have been of opinion, that then the morbid matter is very moveable, and might be therefore more easily expelled, if by an emetic given at this time the spontaneous inclination to vomiting is promoted. Nor does this opinion seem in the least unreasonable, and the celebrated physician Alexander Thomson^l assures us he has followed this method for twenty years with success. But he gave the emetic at the time when the first signs appeared of the approaching fit: but when the febrile cold was accompanied with a violent trembling without a nausea, he then gave a vomit towards the beginning of the febrile heat, as soon as ever the patient began to perceive a sickness at the stomach. But it is evident enough, that the medicines thus taken must be immediately discharged again; and therefore a vomit thus given does not excite so much disturbance as if it was longer retained. This method seems to have been used by Asclepiades^m: for in a tertian fever, on the third day after the invasion, namely, on the day when the second fit invaded, he says, that the bowels ought to be purged; and on the fifth day, after the shivering, an evacuation is to be made by vomit. And this method is also recommended by Celsus, who in another place, describing the cure of the cold fit in fevers, says, *Therefore when any one is first taken with a horror, and afterwards has begun to grow hot, to such a patient* warm

^k Epist. Respons. 1. p. 391.

^l Medic. Essays, Vol. IV. p. 407.

^m Cels. lib. iii. cap. 14. p. 143.

warm water with a little salt ought to be given for a drink to excite a vomit; for almost the same kind of horror arises in these patients, as proceeds from the bilious humours forced into the stomach. The same is to be done if in the like manner it comes on at the next period, for by this means it is often removedⁿ. But this method has more especially pleased many, because the febrile matter collected in the time betwixt the two fits, and from whence the renewal of the paroxysms is believed entirely to proceed, may be thus happily expelled, as it is all ready at hand. But from what has been said at §. 757. it seems very probable, that the febrile fits do not always arise from such a collection of morbid humours, and therefore vomits in this respect are not always necessary in the fit itself; although it may perhaps be serviceable sometimes by disturbing with new tumults the febrile disposition which renews the paroxysm, concerning which we shall immediately treat hereafter.

But to promote the vomiting by the drinking of warm water, when it spontaneously arises in the time of the fit, can never be prejudicial; as thus the patient vomits with less trouble than if the stomach was empty, and at the same time all that is lodged in the stomach may be commodiously washed out.

But since we are here treating of that case in which there is a redundance of morbid humours collected in the first passages, manifesting itself by its proper signs; it therefore seems safer to expel it by a vomit or purge before the fit comes on, rather than afflict the patient with the troublesome operation of the medicine, and of the disease at the same time.

But a vomit or purge is usually given at such a time, that as near as possible it may exert its effects just before the fit is about to happen, yet so that the operation of the medicine may be over before the fit begins. For patients afflicted with intermitting fevers generally find

ⁿ Igitur cum primum aliquis inhorruit, et ex horrore incaluit, dare ei oportet potui tepidam aquam subfalsam, et vomere eum cogere: nam fere talis horror ab his oritur, quæ biliosa in stomacho resederunt. Idem faciendum est, si proximo quoque circuitu æque accessit: sæpe enim sic discutitur. *Ibid. cap. 12. p. 141.*

find themselves best when they have gone longest after a preceding fit, and therefore they will at that time be best able to bear the action of medicines. Even if any febrile matter gradually accumulated renews the fits, there would then be a considerable quantity of that matter collected in the time just before the next fit is about to approach, which we might then reasonably hope to expel by the medicine.

But since Sydenham learnt, by careful attention to diseases, (for which reason his authority is esteemed of the greatest moment with all physicians,) that the febrile motion is irritated both by purges and vomits, which even excite the fever when dormant, as we said before at §. 757. therefore it will be convenient, after the operation of the medicine, to allay the tumult before the fever invades by giving an opiate. And so strictly did Sydenham adhere to this method, that even in diseases where he suspected the use of opiates, he nevertheless gave them if a purging medicine had been used before^d. Now according as the purges or vomits exert their effects sooner or later, they are taken at a longer or shorter interval of time before the invasion of the paroxysm. Thus, for example, ipecacuanha usually excites a vomit in half an hour after it is taken, and finishes its operation in about two hours; but antimonial vomits often lie in the body for two hours before they operate. Purges usually operate in six or eight hours; but if they are taken in the form of pills, they often lie a considerable time before they begin to dissolve and exert their action.

But since ipecacuanha is sufficient to expel the collected humours in this case by vomit, we may therefore very well neglect the more violent antimonial emetics, which excite much greater disturbance in the body. But there are several forms, both of purges and vomits, adapted to this purpose, to be seen in the *Materia Medica* of our Author, corresponding to the number of the present aphorism.

But so happy effects have these medicines sometimes, that they not only expel the morbid humours, but al-

^d In *Schedula Monitor. de novæ febris ingressu*, p. 654, 655.

so prevent the future paroxysms; and this more especially in vernal intermittents, in which ^e Sydenham assures us, “ That a vomit seasonably given, so as to
 “ have done working before the fit begins, sometimes
 “ proves a cure; especially if a moderate dose of sy-
 “ rup of white poppies, or any other opiate, be given
 “ after the operation is over.”

But when the signs teach that the morbid humours are not perfectly discharged by one vomit or purge, they may and ought to be repeated (with the same cautions), as is sometimes required in autumnal intermitting fevers, when there is a great quantity of more tenacious corrupt bile. In that case it is likewise frequently useful to premise the use of diluents and attenuants before the purgatives, that by this means the humours, being dissolved and rendered moveable, may be more easily expelled.

§. 760. **T**HESE vomiting and purging medicines are likewise useful, inasmuch as they stimulate and shake the whole body.

But purges and vomits are not only useful inasmuch as they evacuate; but also inasmuch as they wonderfully stimulate and disturb the whole body, so as to change the condition which at present prevails throughout. For (from what has been said at §. 757.) it seems probable, that the latent disposition which renews the fits of intermitting fevers at stated times, is lodged in the nerves, spirits, or encephalon; but the action of most purges and vomits seems to consist in wonderfully irritating the nerves dispersed through the abdominal viscera by their surprising stimulus, which is often very latent, and which seems principally to reside in the volatile and spirituous part of such remedies. Thus scammony, if it is negligently kept, loses its cadaverous smell, and becomes inactive, without any loss in its weight: and the same is also observed of rhubarb, and many more purges. We likewise see, that

that the regulus of antimony infused in wine, fills it with an emetic virtue; though the smell, colour, and taste of the wine continue unaltered, and the regulus appears to have lost nothing of its weight. The activity, therefore, of these medicines seems to consist in a most subtle principle, escaping almost all the senses, and acting upon the most subtle fluid in the human body. This opinion is confirmed, inasmuch as women who are extremely moveable in their nervous system, and hypochondriacal men who are subject to disturbances of the spirits from the slightest causes, are used to be very badly affected by purges and vomits, even at the time when such medicines taken do not yet excite any such evacuations; to which evacuations otherwise, especially if they were copious, these tumults excited might be ascribed. Moreover, opium, which so efficaciously and certainly quiets disturbances and inordinate motions of the spirits, equally allays the action of purges and vomits, as^f Sydenham has observed; even if purges are given after opium has been first taken, and before the efficacy of it is vanished, they are observed to produce very little or no effect.

Purging and vomiting medicines therefore seem by their stimulus in some manner to change, lessen, or dissipate, that disposition or impression upon the spirits, from whence the fits of intermitting fevers are renewed; and therefore they are deservedly used for this purpose, even though it does not so plainly appear what this morbid impression is, or what that change is which happens in the body from the use of these remedies. We shall hereafter see, when we come to treat of madness and epilepsies, that the strongest vomits are sometimes given by physicians, not so much to make an evacuation of offending humours, as, by exciting disturbances, to make an alteration in the latent cause of those diseases, or what stirs up those diseases into action when they are dormant. Moreover, by vomits especially, the abdominal viscera, pressed by the

violent concussion of the diaphragm and abdominal muscles, frequently suffer a dissolution and expulsion of many obstructing humours, which could not be otherwise obtained by different medicines. Hence Galen, treating of a tertian fever says, *But vomiting is so useful, at least after meals, to those who have been a long time afflicted with this fever, that I have known many immediately freed from the fever after vomiting*^s. But it is evident vomiting was not so useful here by expelling the morbid collection of humours from the first passages; since Galen says, that the vomiting ought to be after meals; for as long as there is such a collection of humours, there is no appetite to food, as we said before under the preceding aphorism.

But when purges and vomits are given with this design, they may be also administered in the fit itself, or at such an interval before it as to act while the fit is on: and this seems to have been the case, when these medicines thus given have been found useful. Thus Sydenham^b in autumnal tertians gave whey of milk, in which the leaves of sage had been boiled, in order to excite sweats, the patient being put to bed, and well covered, about four hours before the fit; and when the sweats appeared, he gave two scruples of pil. coch. major. dissolved in an ounce of a spirituous mixture, containing two drams of Theriaca Andromachi, which theriaca contains opium, by that means endeavouring to lessen the evacuation to be made by the purges. Hence it is sufficiently evident, that his design was not to purge by this medicine; but only, as indeed he expressly says, “to disturb and confound the course of the fit, by exciting at the same time those two contrary motions of sweating and purging.” And he affirms, that he moved many autumnal intermitting fevers by this method, and that he knew nothing better in that epidemical constitution of the disease.

^s Vomitus autem post cibum adeo utilis est sane illis, quibus hæc febris inveteraverit, ut multos norim statim post vomitiones a febre esse prorsus liberatos. *Method. Med. ad Glaccon. lib. i. cap. 11. Charter.*
^b Sect. i. cap. 5. p. 110, 111.

§. 761. **O** THERWISE these evacuating medicines (§. 759.) are prejudicial, as they weaken, exhaust the most fluid juices, and disturb the concoctions and digestions which are here more especially necessary; and thus they either prolong the disease, or destroy the patient. The cold fit and fever in this case are often removed by a sudorific medicine, when the patient's body has been first filled, some hours before the known time of the invasion of the paroxysm, with some diluent and moderately narcotic drink; and then a sweat excited about an hour before the fever, and continued for two hours after the time of the beginning of the paroxysm.

Since therefore purges and vomits are found of so much use in the cure of intermitting fevers, partly by expelling the morbid humours collected in the first passages, and partly by their stimulus; many physicians have been of opinion, that the use of them ought to be closely continued, if the fever does not cease. But the too frequent use of these medicines has been always attended with the worst success. For, as Galen well observes, *The nature of all purging medicines is contrary to the nature of the parts of the body which they purge, and even one may pronounce them poisonous or fatal*ⁱ. In like manner also Celsus strictly cautions, *That as purges are sometimes necessary; so, where they are frequently used, they are dangerous: for the body is thereby brought into a habit of not being nourished, and will be therefore rendered infirm by this means*^k. When therefore those signs attend which denote a redundancy of morbid humours in the first passages (see §. 759.), after a purge or vomit given two or three times, they will

Y 3 be:

ⁱ Purgantium omnium medicamentorum natura corporum, quæ purgantur, naturis contraria est, atque, ut quisquam dixerit, lethalis et deleteria. In Commentariis in Hippoc. de Victu Acutor. Charter. Tom. XI. p. 46.

^k Purgationes quoque, ut interdum necessariae sunt, sic, ubi frequentes sunt, periculum afferunt. Assuescit enim non ali corpus, et ab hoc infirmum erit. Lib. i. cap. 3. p. 31.

be either perfectly removed, or at least greatly lessened; and also, if it has been tried once or twice in vain what can be done by the stimulus of such medicines (see §. 760.) it will then be proper to abstain from the use of them. For the fever often continues though there are no longer any foul humours in the first passages, and sometimes the febrile impression cannot be removed by these stimuli; see §. 757. It will be therefore in vain to attempt to weaken the patient in such a case by these remedies, since they dissipate the most fluid parts of the humours, and disturb the digestion of the nourishment taken in; both which are so absolutely necessary to enable the patient to support fevers of long continuance. But any one may be sometimes deceived in examining what is expelled from the body by the use of purges or vomits, as the humours frequently appear ill-smelling, and perfectly corrupted. For it is evident, from what was said in the comment to §. 201, and 334, that such humours do not always pre-exist in the body as they appear upon being discharged; but, as the ancient physicians have taught, the healthy humours are first corrupted by the purging medicine, and afterwards expelled in that corrupt state. This Helmont¹ learnt to his own damage, when he was cured by the physicians of an itch which he had contracted by imprudently putting on the glove of a girl who had the same distemper. For, after bleeding premised, they endeavoured to prepare him for an expulsion of the morbid humours, which they supposed to be lodged in the body, by supplying him with a drink for three days; and afterwards they purged him with pills of fumitory. But he confesses, that he rejoiced when he saw a great quantity of fetid humours thus discharged: but the same purges were repeated three times, and with the same success. But by such evacuations he found himself so greatly reduced, and so much altered or emaciated in body, though he was before chearful and healthy, that his knees trembled, his voice became hoarse, and all his strength failed him. Yet his itch continued the same as at first.

But

¹ De Febribus, cap. 3. n^o 1, p. 756.

But he tells us, “ That he then understood that purging medicines do not depurate or cleanse, but putrefy, the humours; and that they dissolved the healthy substance of the body with the humours into a putrid mass.” This unhappy method of curing the cutaneous disease, which he had contracted only by putting on a glove, occasioned him to lay aside the study of medicine, till he believed he knew better: and from that time having conceived an ill opinion of the physicians, he strenuously endeavoured to expose their errors, and condemn the use of purges; concluding that it was no peccant humour which purges discharged, “ But blood dissolved by the power of the medicine, so as to acquire a cadaverous fetid smell, as it appeared to be discharged by stool ^m.

From this history it is at least evident, what may be expected from the imprudent use of purges in the cure of intermitting fevers.

But the justly condemned method of giving evacuating medicines too often in intermitting fevers, is confirmed by the observations of Sydenham ⁿ. For even vernal tertians, which are in their own nature so salutary and easy to cure, he had known by this means prolonged even to the time that autumnal fevers are used to invade, till at length they had perfectly reduced the patient to the greatest weakness by the prolongation and reduplication of the fits; and even that such patients had been seized with madness, which went off proportionably as they gathered strength. In people advanced in years, he sometimes observed it to produce a fatal inflammation of the tonsils ^o, sometimes a dropsy ^p, and sometimes a diabetes ^q. But he always observed the fever became worse, and more obstinate, after a too plentiful use of evacuating medicines.

The cold fit and fever in this case are often removed by a sudorific medicine, &c.] This is the third method of curing intermitting fevers; and it may be safely repeated, if the cure does not succeed at the first time.

^m In capit. *Respondet. Author.* n^o 4. p. 420.

ⁿ Sect. i. cap. 5. p. 100. ^o Ibid. p. 122.

^q Idem Epist. Respons. 1. p. 387.

^p Ibid. p. 120.

time. But (as we said before at §. 756.) every medicine which is able, in the first stage of the fever, namely, in the cold fit, to remove the first cause, *viz.* the viscosity of the arterial fluid, and perhaps likewise of the nervous juice, (see §. 755.) seems likewise able to subdue the whole febrile paroxysm; since the febrile heat, with its concomitant symptoms, never follow in intermitting fevers, unless the cold fit has preceded. All the intentions of cure therefore depend upon giving such medicines, when the fever is absent, as dissolve and attenuate the humours, open the vessels, and introduce such a moderate warmth throughout the patient's whole body, at the time when the future paroxysm is expected, as will prevent the febrile cold by the heat uniformly increased throughout the whole body with a mild sweat, excited by gentle aromatic and warming medicines, moderately increasing the motion of the humours through the vessels. A decoction, therefore, of the five opening roots, an infusion of the woods of sanders, sassafras, balm, citron-peels, the four larger and lesser warm seeds, &c. drank to the quantity of an ounce or two every hour betwixt the fits when the fever is off, will fill the body with a thin aromatic liquor. And sometimes to these are added a mixture of the salt of wormwood, or of the *carduus benedictus*, &c. elixir proprietatis, distilled aromatic waters, and the like; of which half an ounce may be taken every, or every other hour, drinking afterwards an aromatic infusion or decoction. To such mixtures it is usual to add a small quantity of opium, not so much as to occasion sleepiness, but in small doses, at repeated times, just to allay the disturbances of the nervous spirits, and prevent that change of them, whatever it may be, that is used to attend in the time of the cold fit. But these aromatic drinks are to be given stronger, or more dilute, according to the age and habit of the patient, with the season of the year, country, &c. and in the *Materia Medica* corresponding to the number of this aphorism may be seen specimens of these. But two or three hours before the known time of the approaching fit, the patient ought

to be seated before a large fire, well-covered with clothes: it will be also of use, if the patient's feet be at the same time immersed in hot water. Others rather chuse to have the patient well covered up with clothes in the bed, then the medicines before recommended may be given every quarter of an hour; whence the patient begins to grow hot, and frequently runs down with sweat. But this method is to be continued, until two hours are elapsed after the time of the beginning of the fit; and thus the hot fit of the fever is frequently prevented, or removed; otherwise the same method is to be repeated upon the following days, till the fever is cured. This method seldom fails in tertian fevers; and even sometimes quartans have been thus cured. Nor is it any objection to this, what we observed at §. 624, in treating of the cold fit of a fever, namely, that medicines powerfully stimulating are injurious, as they often excite an incurable inflammation: for the spices here are drunk diluted with a large quantity of water, and the humours are thus attenuated and thinned by these remedies in the interval when the fever is off; and the vessels are so opened, that there is no reason to fear any danger from thence. Moreover, all these are not taken in the cold fit, but that fit is usually prevented by them. But when the cold fit begins to invade, and the fever being more stubborn does not yield immediately to this method, we abstain from the use of such as are stimulating and heating, and exhibit only more dilute aromatic infusions.

But it is evident from what was said §. 756. that Celsus made use of the same method, by ordering the patient into the warm bath about the time of the cold fit; nor would he have that method be laid aside even though the cold fit should return, but on the contrary he would have it firmly persisted in: and if after some fits the bath appeared of no use, he gave garlic or hot water with pepper, that by the taking of these a heat might be excited to drive away or keep off the cold fit. He also advises^r the patient to be well covered, and

and assisted by frictions, warm fomentations, and the like, applied to the whole body, before the cold fit can approach.

But so useful did this method seem to Sydenham^s, that he assures us, he had not experienced any better for the cure of autumnal tertians, at least those of the epidemical constitution which he describes. For although, as we said under the preceding aphorism, he gave pil. cochiaë to the patient in a sweat, in order to disturb the ordinary course of the fit, yet his principal hopes seem to be placed in exciting and continuing sweats until some hours are elapsed beyond the usual time of the fit. He even orders the pil. cochiaë to be omitted in double tertians, and would have the cure attempted by sudorifics only^t. And in another place^u, to poor people whose circumstances would not admit of a long course of medicines, he only gave, in wine, about two hours before the fit, the radix serpentaria virginiana, which abounds with a penetrating spiciness; and ordered them to sweat three or four hours, well covered up with clothes: and the same he would likewise have repeated twice more at the approach of the fit of a vernal tertian.

But when tertian and quotidian fevers are yet recent, and upon the brink of turning continual, having as yet not put on any certain period, he then observes^w, that to attempt the cure by sudorifics is dangerous; since by a more profuse sweat these fevers may be very easily changed into continual ones, not without danger to the patient; as we said before upon another occasion, in the comment to §. 752.

But when the patient's blood is naturally of a very loose or broken texture, or if by long continued and violent intermitting fevers he is much inclined to weakening sweats, (see §. 753.) then certainly this method must not be followed; although, except in these two cases, it is otherwise found very successful.

§. 762. **H**ENCE also blood-letting in these fevers is in itself generally prejudicial;

^s Sect. i. cap. 5. p. 111.
p. 391.

^w Ibid. p. 374.

^t Ibidem.

^u Epistola Respons. 1.

cial; otherwise it may be of service by accident or in some cases, as may be likewise a thin and strict diet.

Since blood-letting is so efficacious a remedy in quieting the too great violence of a fever, as we said before, (§. 610.) many physicians have been of opinion that it may be likewise of great use in the cure of intermitting fevers; and even some have believed, that these fevers might be removed only by repeated blood-letting. But since it was demonstrated under the preceding aphorism, that all evacuations, if violent and repeated, are prejudicial because they weaken; so the same is true likewise of blood-letting. But purges in autumnal intermittents are not so prejudicial, unless they are too often repeated, according to the observation of Sydenham^{*}; but venæsection, he assures us, he had learnt from frequent observation to be always mischievous, “ unless the surgeon kills the fever at the same time, “ and by the same instrument with which he wounds “ the vein.” For in strong and otherwise healthy people, he had observed these fevers to continue longer and more inflexible after blood-letting; and in old people he observes, that death itself has frequently followed from this evacuation. But he observes, that blood-letting is most mischievous to those afflicted with quartan fevers. Yet it may indeed be of service by accident; as when, for example, in a juvenile plethoric person, and especially in the spring-time, there is danger lest the blood, being rarefied during the heat, should burst the vessels already too full, or when a violent pain of the head attends from the same cause: but then blood-letting does not properly conduce to the cure of the intermitting fever itself, but it only prevents those bad consequences which are feared from the too great quantity and rarefaction of the blood. Thus also, if a vomit is necessary, bleeding is sometimes premised; lest the vessels, over-distended with blood in vomiting, should be burst by the violent strainings. Hence even Sydenham himself, who in
other

^{*} Sect. i. cap. 5. p. 110.

other cases so much condemns blood-letting, yet orders it in vernal tertians on the day when the fever is off, when the patient is in the flower of his age, and of a sanguine habit; and when that was performed, he gave a vomit some hours after. It is therefore evident what good is to be expected from blood-letting in the cure of intermitting fevers.

But a thin and strict regimen, which prescribes too much abstinence from foods, or the use of such only as are the lightest and abound with the least nourishment, must be equally prejudicial in these fevers. For as they are frequently of long continuance, more especially quartans, endeavours ought to be used to enable the body to sustain with ease that which it must support for a long time^y. For it is sufficient in this case, to avoid foods which have been hardened by salting or drying in the air by smoke, or other hard aliments of difficult digestion; and at the same time to take care to avoid eating about the time when the fit is expected: for, as we said before at §. 758. from Hippocrates, “food is to be given after the accession, as near as can be computed, lest the fever should come on while the aliment is crude or before it is concocted.” This method of curing intermitting fevers by a thin and strict diet seems to have been put in practice by the ancient physicians. For thus Celsus advises in a quartan, which he knew to be of slow termination, that if it does not go off on the first days, the patient should drink warm water only upon the first day after the fever; and for the two next days not be allowed even that, if it can be avoided: after the second fit, he allows only a small quantity of food with a little wine; and then, upon the intermediate or free days between the second and third fit, he gives warm water only, and orders abstinence from every thing else: in which method he would have the patient continue until the fourteenth day; and thus, says he, it is probable, that by rest for so many days, with abstinence, and other remedies prescribed, the fever may be removed^z. But if the fever still continues, he would have another method

^y Cels. lib.iii. cap. 15. p. 145.

^z Ibidem.

thod or cure undertaken; and orders the patient to use as much and as strong food, with wine, as he can bear.

I have several times seen the cure of a quartan attempted by severe abstinence, but always with ill success; and the wise Hippocrates ^a observes (as we said before upon another occasion in the comment to §. 602, no 1.) that a thin and exquisite diet is always dangerous in diseases of long continuance; that errors thus committed, are much worse than those which arise from a too plentiful diet; and that, even in healthy people, such a thin diet is not without danger. But in the fits themselves he orders the food to be diminished ^b, &c. Hence it would seem, that we may conclude for certain, that a too thin and strict diet is not safe, even in the beginning of a quartan. Much less can we approve of the method used by Heraclides of Tarentum, who tells us, That in a quartan a purge is to be given, and afterwards abstinence to be enjoined till the seventh days: for, as Celsus well observes, *it is hardly in the power of any one to support purging without nourishment, even out of a fever; and therefore, if the fever invades, the patient must of necessity sink under it by this means* ^c. But the unhappy success of this method is proved by many instances in medical history. Thus a young man, of a bilious habit, by long fasting, is observed by Hollerius ^d to have perished with faintings in a violent fit of an intermitting tertian; and the same thing is likewise testified to have happened to others. Tulpius ^e affirms, that such an abstinence had proved fatal to many in quartan fevers.

§. 763. **W**HEN the fever is in its second stage or hot fit (§. 750.) watery medicines actually warm, and mixed with subacids, aperients, and nitrous medicines, or decoctions

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tions

^a Aphor. 4. et 5. sect. i. Charter. Tom. IX. p. 9, 11.

^b Aphor. 11. sect. i. ibid. p. 15.

^c Quod ut sustinere aliquis possit, tamen etiam febre liberatus vix refectioni valebit; adeo, si febris sæpius accesserit, concidet. *Cels. lib. iii. cap. 15. p. 145.*

^d In Coac. Hippocr. p. 179.

^e Observ. Medic. lib. iii, cap. 53, p. 271, 272.

tions of succory, with the like mild vegetable aperients, are chiefly indicated; and the patient should likewise then be kept moderately warm and at rest.

We have hitherto treated of those medicines which are chiefly useful either in the cold fit, or when the fever is off; it now remains for us to see what is necessary to be done in the other stages of an intermitting fever. The present aphorism treats of what is convenient during the hot fit of the fever.

It appears evident from what was said at §. 750, that in this stage the motion of the humours is increased through the vessels; as we are taught from the pulse being larger, stronger, and at the same time sufficiently quick, and attended with an increased heat, from the greater attrition of the fluid parts against each other, against the vessels, and of the vessels against them, (see §. 675.) Here therefore all those consequences are to be feared which arise from an increased quickness of the circulation (§. 100), and such as owe their origin to an increased heat, (§. 689.) But in the mean time as intermitting fevers entirely cease for a while, these bad consequences are not to be feared in any great degree from the heat and increased velocity of the circulation, which cease after a few hours; and even frequently the circulation is more languid, and the body appears colder, when the fit is off, than what is naturally to be observed in a healthy body. For this reason, though so great a degree of heat is observed in this stage of an intermitting fever as would be very dangerous in continual fevers, and require to be treated with bleeding, clysters, and other weakening medicines capable of restraining the too great violence of a fever (see §. 610.); yet there is seldom occasion for these in the present case, except in patients very plethoric; and therefore we generally abstain from the use of them, because it was proved under the preceding aphorisms that the like remedies often prove mischievous in the cure of intermitting fevers.

It is therefore sufficient for the patient to take such
warm

warm watery liquors as may prevent or remove the increased cohesion of the humours from the greater heat and quickness of the circulation, by diluting and attenuating them: to these are added subacids, which resist putrefaction to be feared from the same causes, and which at the same time happily relieve the troublesome thirst. Decoctions of succory, and the like bitter, aromatic, and cooling lactescent plants, are also recommended; concerning the efficacy of which in resolving the febrile viscid, we treated before at §. 614. Hence decoctions of barley, oats, vipers-grass, roots of common grass, and the like obtunding and mild aperient substances, with the addition of nitre, citron-juice, jelly of elder-berries, currants, and the like, are extremely useful; of which kind many more medicines are enumerated in our author's *Materia Medica*, at the number corresponding to §. 640, and adapted to Thirst in Fevers.

But that rest is here convenient, appears from what was said before at §. 105. and it is also indicated by the pain of the head and limbs (§. 750.) which usually attends the febrile heat: but as such patients have at that time a troublesome heat, it would be imprudent to increase the heat by a weight of bed-clothes, or the exhibition of heating medicines; but those things ought rather to be gradually removed with which the patient was covered during the time of the cold fit; taking care to keep the patient always in a moderate warmth, that the cold air may not come suddenly to the heated body; and to prevent plentiful drinking of cold liquors, which is a thing often earnestly desired when the patient is uneasy under the febrile heat.

§. 764. **W**HEN the paroxysm terminates by a crisis (§. 751.) it will be proper to evacuate the matter by urine and sweat, by temperate decoctions, vinous ptisans, and flesh-broths; and in such a manner as not to express or force these by the efficacy of heat, medicines,

256 INTERMITTING FEVERS. §. 764.
or weight of bed-clothes; but to promote them moderately, and for a long time, by increasing the quantity of their vehicle.

The last stage of the intermitting fever, is when the fit terminates by a profuse sweat, and commonly with a remission of all the symptoms, as was said at §. 751; and then also the urine has commonly a thick lateritious sediment. But as the patients perceive considerable relief upon the appearance of this sweat, which soon puts an end to the febrile paroxysm, therefore physicians will have this evacuation not only indulged, but even promoted, as being of opinion that the febrile matter may be most commodiously evacuated this way from the body; and even some have thought, that, by increasing these sweats, the matter might be expelled, which remaining in the body would renew the subsequent fits. It seems indeed very probable, that by these sweats are evacuated from the body such parts of the humours, which by and during the fever degenerate from their healthy state; and therefore this sweat is always useful: but yet it is not always convenient to increase its quantity by art. For although some may believe that by these sweats is expelled part of the cause from whence the fits are renewed, yet they cannot be certain that the remaining part of the same cause is at that time disposed to be likewise evacuated; and therefore increasing these sweats may be prejudicial, by wasting the most fluid parts of the humours. Sydenham^f has indeed observed, that vernal intermitting fevers, especially quotidians, have been cured by diaphoretics, which promote a sweat in the end of the fit, the patient in the mean time being well covered with bed-clothes; and he even orders the patients to continue in these sweats as long as their strength will permit. But he observes in the same place, that this method does not succeed in autumnal intermittents; and a little before he declares, that these vernal fevers, not only go off spontaneously, but are likewise happily removed by various methods tried.

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Hence it is evident, that from this observation we cannot conclude an artificial raising of a sweat to be useful in the end of the febrile paroxysm; more especially if we consider what is said to this purpose in other parts of the same author. For, in treating of autumnal epidemic fevers ^g, he says, that the sweat which appears in this disease, when the restlessness goes off, and the other symptoms immediately disappear, ought indeed to be a little indulged; and yet that it is found by experience, that if this sweat in the end of the fit is increased beyond its proper degree, it will be in danger of changing an intermitting into a continual fever. The like he has also in another place ^h.

From all this, therefore, it seems we may conclude, that the fit of an intermitting fever constantly terminates with a sweat, which ought rather to be indulged, and even promoted by such things as restore to the blood those juices which are dissipated by sweats; as when a ptisan with wine, or flesh-broth mixed with juice of citrons or oranges, supply the matter exhausted by sweat, and at the same time recruit the patient's strength weakened by the fever, and afterwards by the sleep which generally follows such light and thin nourishment is most equally distributed throughout every part. But it is a very doubtful and frequently a pernicious practice to force these sweats by the power of heat, the weight of bed-clothes, or by heating sudorific medicines. But the appearance is best when such a sweat is discharged but moderately, and for a long time together; or rather if the insensible perspiration only is increased, instead of a profuse sweat.

§. 765. **M**OREOVER, the urgent symptoms attending are to be relieved agreeable to the directions given before for Acute Fevers, (§. 617, to 726.)

We have already treated of the symptoms which usually attend fevers, in the aphorisms here cited in the text; from whence, therefore, the cure of them

Z 3 may

may be derived. But then, as we said before at §. 620, in the cure of febrile symptoms, a regard must always be had to the cause and stage of the disease itself, upon which those symptoms are attendants; which caution is therefore to be observed likewise in the cure of the symptoms of intermitting fevers. Thus it appears from what has been already said, for instance, that a too frequent use of blood-letting, vomits, and purges, is prejudicial for intermitting fevers; and that therefore if some symptoms seem to require these evacuations, yet they ought not to be used so liberally as they commonly are in other cases. Thus, as we observed before at §. 751, 757, in a certain epidemical constitution the patients were taken with perfectly the same symptoms in the fit of the intermitting fever as if they were taken with an apoplexy. But although the removal of this symptom seemed to require great evacuations, yet Sydenhamⁱ abstained from the use of them, as he knew them to be perfectly against the original cause of the symptom, namely, the intermitting fever. Thus also, when intermitting fevers of long continuance were followed with a dropsy, he did not attempt the cure by purges as long as the fever attended, but waited till that was perfectly gone off; or if the cure of this symptom could not well be deferred so long, he treated it with bitters, aromatics, and lixivial salts, infused together in wine^k. Thus also in the madness which sometimes follows intermitting fevers of long continuance, especially quartans, he abstained from all evacuating medicines, which are useful only in the other kinds of madness; having recourse in this case merely to a restorative diet, generous drinks, and cordial medicines^l.

§. 766. **A**FTER the fever is removed, the patient is to be recruited by a restorative diet and corroborating medicines; and when his strength is increased, he is to be purged several times by stool.

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ⁱ Epist. Respons. r. p. 387.

^k Idem, sect. i. cap. 5. p. 120.

^l Idem, ibidem, p. 123, 124.

It was said in the comment to §. 757, that after intermitting fevers are removed, there still remains for a long time that latent disposition, which by the accession of another cause, as cold, indigestible food, passions of the mind, &c. is put into action again, so as to cause a return of the fits: and therefore, when the fever is removed, there still remains something more to be done to prevent its return; and likewise to restore and correct such alterations as have been made by the preceding fever, deviating from the laws of health. But in vernal intermittents, which are usually of short duration, and terminate almost spontaneously, while the warmth of the air likewise is daily increasing, there is no great attention required to prevent their returns: but in autumnal intermittents, more especially those which invade epidemically, greater caution is necessary. For these last are much more obstinate, weaken the patient more, and are in greater danger of returning from the increasing coldness and inclemencies of the weather.

The diet should be therefore such as consists of nothing but what is easy of digestion, and contains a great quantity of nutritious matter. Flesh-broths, new laid eggs, the flesh of young animals roasted, tender river-fish broiled, with the addition of the juice of citrons or oranges, bread well fermented or twice baked, as the rusk, with milk, are the chief. The drink should be small in quantity, but rich or strong. At the same time care must be taken not to let the patient eat too much at once of such aliments, though they may be easy of digestion; (for patients are often very voracious after the cure of these fevers.) For by the sweats following after each paroxysm, and the other evacuations made either spontaneously or by art, much of the healthy humours are destroyed, and the solid parts at the same time are greatly weakened, as we demonstrated before at §. 753; and therefore the two causes will be weak or deficient, upon which depends the assimilation of the ingested aliments into the nature of healthy animal-fluids, namely, a due quantity of sound juices, and a due force of the solids up-
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on the fluids, as we demonstrated at §. 25, no 1. It is therefore evident, that unless these cautions are observed in the diet, from the food being either of difficult digestion, or from the best food being taken in too great quantities at once, crudities may be formed, and a spontaneous degeneration may be expected of what is taken in, either into an acid, putrid, glutinous, or other morbid matter; from whence not only a return of the fever may be feared, but also chronic diseases may thence originate, as will be demonstrated hereafter at §. 1050.

The sleep is to be longer than usual: and exercise of body also, if the strength will permit, will be of great use; but if great weakness forbids, its deficiency may be supplied by riding in a chariot, or other carriage: the cold is to be carefully avoided, the efficacy of which in exciting fevers again, after they have been suppressed, we demonstrated in the comment to §. 757.

But such medicines are principally recommended, as corroborate the weakened solid parts, excite the stomach by their agreeable spiciness when it is in a languishing condition, and defend the whole body against the cold of the air. But since there is frequently a corrupt bile attends in autumnal intermitting fevers, and which sometimes is discharged spontaneously, but oftener by art, either upward or downward; therefore there is commonly a deficiency in the due quantity of good bile after those fevers are cured, tho' this juice is demonstrated by physiology to be of the greatest use and importance towards chylification and nutrition. For this reason therefore it will be necessary to add corroborating and spicy medicines to such things as can supply the deficiency of the bile, namely, bitters, which have been recommended for this purpose in all ages, as wormwood, the lesser centaury, roots of elecampane, gentian, myrrh, &c. from all which, with cinnamon, winter's bark, citron or orange-peels, &c. medicinal wines are prepared; of which two or three ounces may be taken three times every day upon an empty stomach. That kind of theriaca, called *diateffaron* from the number of its ingredients,

dients, mixed with an equal quantity of preserved ginger, and reduced into the form of an electuary, will answer the same purpose, if it is taken thrice a-day to the quantity of a dram or two; for then this fragrant spice will continue the whole day in the first passages, so as to excite the languishing parts by an agreeable stimulus, and increase their warmth, while the bitterness of the gentian root, myrrh, &c. happily supply the deficiency.

But after the patient's strength is recovered by such a restorative diet and corroborating medicines, it will then be proper to cleanse the bowels by purges several times repeated. Sydenham^m (whose observations in the cure of diseases deserve to be trusted beyond all others, as well on account of his great penetration and sagacity in discovering the nature of diseases, as for the veracity and openness which he demonstrates throughout his writings, wherein he does not conceal, or even excuse, his own errors or mistakes) believed this evacuation to be so necessary, that he could safely predict some dangerous disease would follow if purging was neglected after autumnal fevers, more especially if the patient was far advanced in years. But he cautions against the use of purges before the fever is perfectly removed. For he abstained from these medicines as long as he could perceive even the least alteration in the patient upon those days when the fit used to return; and he would even chuse rather to let the patient alone for the space of a month, than oblige him to take purges too soon; but after the operation of the purge, he gave a paregoric medicine to quiet the tumults which are often excited even by the mildest purgatives, lest perhaps the morbid impression, a long time concealed in the nerves, should thus break out again into action, and renew the fits. But if purges were given too soon, he observed that the fever always returned, and became much more obstinate than at first. For the same reason, likewise, he rather chose to leave long intervals betwixt each purge: ordering them to be repeated only once in a

week

week, for two or three months.

Yet the repetition of purges so often is not necessary in every patient, nor does Sydenham seem to have made this his constant practice; for soon after he describes a purging apozem to be taken upon the three following days, when there is no danger of the fever's return; and he adds, that it is to be repeated as often as there shall be occasion. When autumnal intermitting fevers were spread epidemically in these parts some years ago, I gave a scruple or half a dram of pil. Ruffi, to patients who had been free from the fever for two or three weeks; and this I repeated three times, intermitting some days betwixt, and I seldom found occasion for purging oftener. For all the functions continued entire, there was no longer any foulness of the tongue, or oppression about the præcordia, nor any sense of a weight or heaviness, from which signs attending we especially conclude purging medicines to be necessary. Yet I observed at the same time, that, if these purges were neglected, the urine became redder than usual, the white of the eye turned yellow, the tongue appeared foul, and the appetite was abolished, &c. all which symptoms were removed, or at least diminished, immediately upon giving a purge, which usually brought away a great quantity of bilious humours.

§. 767. **B**UT if the intermitting fever be autumnal and severe, the body weakened by disease, or the distemper of any long standing, while at the same time there are no signs of inflammation internally, nor of any collection of matter in any part, nor any considerable obstructions in this or that viscus, the fever may be then removed by the Peruvian bark, either in the form of a powder, infusion, extract, decoction, or syrup, with the addition of such other ingredients as may be suitable to the particular circumstances, to be administered under a due regimen.

regimen, in a proper dose, and in a just order betwixt the fits when the fever is absent.

We come now to treat of the cure of intermitting fevers by the use of the Peruvian bark.

The use of this bark was first known in Europe about the middle of the last century, from which time it has greatly prevailed; and it then appeared from numerous and daily observations, that all intermitting fevers might be removed by the Peruvian bark. But in the mean time it was found, that this removal was not always attended with the same good consequences, being sometimes followed with the worst disorders, which were ascribed to this medicine as the cause; and on this account the use of the bark was condemned as pernicious by many physicians, though at the same time the ill accidents following after the cure of fevers by this medicine might be justly ascribed to very different causes.

For we have seen at §. 753. that sometimes very considerable and morbid alterations have been introduced by intermitting fevers, both in the solid and fluid parts of the body; and that these alterations sometimes terminate in the most stubborn chronical diseases, as a dropsy, scurvy, jaundice, schirrhus tumours of the abdomen, &c. all which disorders arising from intermitting fevers of long standing, or following some time after them, cannot be justly ascribed to the Peruvian bark administered for the cure of those stubborn intermitting fevers; since the most numerous observations of physicians assure us, that all these disorders have been produced by intermitting fevers, even before the use of the Peruvian bark was known in Europe. Moreover, by the use of the Peruvian bark the intermitting fever is indeed removed, but then all those indispositions of the solid and fluid parts of the body which it introduced are not removed at the same time, but they continue even after the fever, to be cured by other medicines.

But it likewise appears from what was said at §. 754. that the most inveterate and latent disorders, hardly
curable

curable by any medicines, as a palpitation of the heart, epilepsy, gout, &c. have been either removed by intermittents, or at least their violence has been allayed. It there also appeared, that by these fevers the body is disposed to longævity; and that afterwards people who have had these fevers, not attended with malignant symptoms, nor too violent or of long standing, have for the future enjoyed a very good state of health. When therefore these fevers, from which such benefits might be expected to the patient, are driven away by the Peruvian bark, his interest is indeed badly consulted; but then the mischiefs which follow ought rather to be ascribed to a want of skill or attention in the person who undertakes the cure, than to this incomparable medicine.

The use of the Peruvian bark has indeed been suspected by many people, chiefly because it often removes intermitting fevers without any sensible evacuation; for which reason they have supposed, that the morbid matter still continues always in the body after these fevers have been cured, a part of which matter ought to have been expelled in each paroxysm until the whole is removed. For although it cannot be denied, that sometimes there is a morbid matter in the body, which being subdued and put in motion by the fever is happily disposed to be expelled by various ways; yet it appears from what was said in the comment to §. 757. that the fits of intermitting fevers cannot be excited by foul humours lodged in the body, nor by any fomes accumulated during the absence of the fever: but that they proceed rather from some latent character or impression made upon the nervous spirits, the nerves themselves, or the common origin of both, which yet may indeed be irritated by morbid humours collected, so as to produce much longer and more violent fits; and that this may be excited into action by the like causes when dormant, and yet that it does not always require other causes to make it act, but is capable of renewing the fits by its own force. It is also remarked in the same place, that it seems very probable the Peruvian bark acts only upon this impres-

impression or disposition of the nerves, when it removes intermitting fevers without any evacuations or other sensible change in the body.

But that the Peruvian bark is in its own nature an innocent medicine, we have no room to doubt; for it is frequently given to cure other diseases by its corroborating virtue, even in the weakest people. Thus Sydenhamⁿ gave a scruple of the Peruvian bark night and morning, for several weeks, to hypochondriacal men and hysterical women, and likewise to such as had acquired a dejected œconomy of body by lingering diseases; and he assures us, that he made a perfect cure of that tedious disorder by this remedy only; and adds, that he freely made use of the bark, when there was occasion, both for his wife and children. When I was formerly intent upon collecting the history of simple medicines, I tried the virtues of many even upon my own body, and took the quantity of an ounce of the Peruvian bark beat to a fine powder, in the space of two hours, in a morning fasting, nor was I able to perceive any detriment from thence. I have known some, unworthy of the name of physicians, make an advantage of the disrepute unjustly thrown upon this salutary medicine, which they have openly condemned as extremely mischievous, when at the same time they have privately made use of it, concealed by the addition of other ingredients; and have boasted themselves able to cure intermitting fevers by secret medicines, for which they have extorted an unreasonable price. But as all the best medicines, so the Peruvian bark may do harm when unskilfully applied: and therefore it is first necessary to inquire strictly, whether any thing lies concealed in the body requiring a continuance of the fever, in order to remove it safely and speedily; as also whether any considerable advantage may be expected from leaving the fever to itself, either for removing inveterate diseases, or in so changing the body as to dispose it to a firm state of health, or to longevity, (see §. 754.) For under these circumstances, the bark ought to be abstained from. Thus

for example, if a strong young man is taken with a simple quartan, not attended with any bad symptoms, the patient being at his own dispose, and capable of using a due regimen, it will be always best to leave that fever to itself, since constant observation has shewn that the body is by such a fever changed for the better. But on the contrary, if the patient is old, weak, or subject to waste with profuse sweats from the slightest causes, the use of the Peruvian bark will be necessary. But the principal reasons for which the use of this medicine is required, and the various cautions to be observed in its use, are reckoned up in this aphorism; and therefore we shall consider them more particularly.

But if the intermitting fever be autumnal and severe.] For vernal fevers are easy to remove, and usually go off spontaneously in a little time, as was said at §. 747. and therefore the bark is seldom made use of in these; unless, from attempting to remove them with unseasonable evacuations, they should run out to a greater length, or waste the patient in very profuse sweats; for then I have often seen even vernal fevers inflexible to all other methods, and only to be cured by the Peruvian bark. But if an autumnal intermitting fever is not so violent as to occasion sudden weakness, nor other disorders seem to be feared, enumerated at §. 753. it is better to abstain from the use of the bark, and to let it gradually go off either spontaneously or by the method before described at §. 758, 767. For the Peruvian bark, as Sydenham justly observes, oftener commands a truce than entirely subdues the fever, which lying dormant for two or three weeks usually returns again. But when the fever has been cured by another method, there is less danger of its return.

The body weakened by disease.] For if the patient, either from a natural disposition, an advanced age, or intensity of the disease, becomes so much weakened, that there is danger lest he should be carried off by more numerous or more violent fits; then the Peru-

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vian bark ought to be exhibited, even though there are other signs which seem to forbid its use. For thus we command a suspension of the disease, to the great relief of the patient; who in the mean time may be recruited with suitable diet, so as to be afterwards able to sustain the violent and troublesome returns of the fever without danger.

For in such cases we are not always to endeavour to prevent the return of the fever by a repeated use of the bark; for that practice is seldom without danger: but we make use of those remedies before recommended at §. 758. at the time when the fever is off; that thereby the obstructions of the viscera may be resolved, and the other disorders remedied, the removal of which is attempted by nature through the fever itself, as we said before in the general history of fevers. For there is then great reason to hope, that, the strength being recruited after two or three weeks, the fever about to return will finish the rest of its course in a short time, and by that means restore the patient to the most perfect health.

[The distemper of any long standing.] This rule is of the greatest consequence, insomuch that, being neglected, sometimes death, but frequently the most direful and perfectly irregular symptoms have followed, much worse even than the fever itself. For they who are so much alarmed with the odious name of Fever, that they always and immediately endeavour to remove it even in vernal tertians, which have appeared only with one or two fits; such are directly for giving the bark, to make a cure while the fever is as it were in the bud; being ignorant that the fever is often itself a remedy, as Celsus^p well observes, and as we demonstrated more at large in the comment to §. 558. A young man had the bark given him after the second fit of a vernal tertian, lest, as the physician said, the fever should take too deep root; and when the fever returned after some days, it was again directly suppressed by the bark: but I afterwards saw this unfortunate patient invaded every day, about the hour

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when the fits used to come on, with a yawning, stretching, wonderful rumbling noise in the bowels, swelling of the abdomen, and loss of speech, without any alteration in the pulse, but with an intolerable anguish; all which troublesome disorders continued for two months, though various methods of cure were attempted: So many and great disorders were brought upon the patient, to avoid a few fits of a vernal tertian. Medical observations^a demonstrate, that a jaundice, dropsy, asthma, and wonderful disturbances of the whole nervous system, have sometimes followed from such an imprudent use of the Peruvian bark. I shall only add one extraordinary case in confirmation of what has been said. A young man, afflicted with a quotidian intermitting fever, took five drams of the Peruvian bark in each of the intervals between the three first fits: but at the time of the fourth fit, he had only a slight horror or shivering; and on the next day, after some minutes shivering, he was taken with the most violent pains about his ankles, as if all the parts were twisting and cutting off. These tortures continued for about five minutes; and then the pain suddenly ceasing in the ankles, affected the knees in the same manner and for the same space of time, and then removed to the joints of the thighs: after these followed a hardness, pain, and swelling of the abdomen; which ceasing, the most severe disorder took place in the thorax, with imminent danger of suffocation: afterwards he fell down, and lay as one apoplectic; and at last became altogether delirious. The delirium ceasing after five or six minutes, the patient seemed to be pretty well: and in this state he continued for about as long a time as all the forementioned symptoms had been invading; and then again they all returned in the same order, and continued the same space of time^r. More cases of the like nature are enumerated in the same place; from whence it appears, that it is not without the greatest reason that Sydenham^s cautions “not to give it too early, namely,

^a Medical Essays, Vol. IV. chap. 24. p. 110.
^s Sect. i. cap. 5. p. 112.

^r Ibidem.

ly, before the disease be in some measure spontaneously abated, unless the extreme weakness of the patient requires it to be given sooner; for the giving it too soon may render it ineffectual, and even fatal, if a sudden stop be thus put to the vigorous fermentation raised in the blood in order to its despumation."

But although this rule seems to be of universal use in practice; yet when every fit of the fever is attended with some dangerous symptom, which cannot be removed but together with the fever itself, we are then sometimes obliged to use the bark sooner than usual. Some years ago, when autumnal intermitting fevers were epidemical, I had the care of a woman, having a very weak or irritable nervous system, afflicted with a tertian, she having been delivered about five weeks before of a healthy male child. In the beginning of the second fit she was convulsed, and continued speechless for some hours. But as she complained of a sense of heaviness about the præcordia, and as I have known vomits or purges given before the fit to relieve many other patients in the same complaint, I therefore ordered a gentle purgative to be taken eight hours before the fit next following, and appointed a cordial and opiate medicine to allay the disturbance excited in the body by the operation of the purge, and all before the invasion of the fit: But two hours after taking the purge she was convulsed, and continued speechless longer than in the preceding fit. I then gave a decoction of the bark when the fit was over, with so much success, that the next fit, which was the last, appeared very slight and without any bad symptom, the patient finding herself wonderfully strengthened, and much less liable to be disordered from passions of the mind even though violent. But even Sydenham himself in the like case, when the patients lie in the fits like those who are taken with an apoplexy, orders the bark to be immediately given as soon as the fit is over, or even before if it can be conveniently taken.

And no signs of inflammation internally.] It ap-

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appears from what has been said in the comment to §. 753. concerning the effects of intermitting fevers, that by these fevers, when violent or of long continuance, the blood is deprived of its best parts, and what remains becomes thick and acrid, so as to be greatly inclined to produce inflammations and obstructions. But it is confirmed by the observations of the most celebrated physicians, that inflammations and their consequences, though not so often, do yet sometimes follow from intermitting fevers, and generally with fatal events. There is sometimes a slight kind of inflammation in the liver attends autumnal intermitting fevers when they are epidemical, in which the use of the bark is always of the worst consequence, inasmuch as it removes the fever, and leaves behind the matter which ought to have been concocted and dissolved by the fever itself. When therefore a continual fixed pain, or the sense of a burning heat internally, with the other signs of inflammation, attend, the use of the bark must be abstained from.

Nor any collection of matter in any part.] In consumptive people we frequently observe a fever every day, which sometimes perfectly intermits, but sometimes has only remissions; which fever seems to arise from the matter daily formed, and afterwards evacuated by spitting. The concoction of this matter is performed by such a fever; which, if it was to be suppressed by the Peruvian bark, such patients would find themselves greatly disordered, and oppressed with intolerable anguish; and therefore, if there is the least suspicion of matter collected in any part, the use of the bark must be entirely rejected.

Nor any considerable obstruction in this or that viscus.] After the most intense heats of the summer preceding, autumnal intermitting fevers have been observed to spread epidemically, not only in these low countries, but almost throughout Europe, more especially about the 19th year of the present century, when such fevers were above all observed the most numerous in this city of Leyden. But then the most fluid parts of the blood seemed to have been dissipated by
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the preceding heats of the summer; and what remained being thick and tenacious, could not without much difficulty pass through the narrow extremities of the vessels in the liver, through which all the venous blood returning from the abdominal viscera must be obliged to pass, by the converging branches of the vena portarum, without any additional force from the impulse of the heart. Therefore an obstruction here formed, not only disturbed the due separation of the bile, but likewise injured the functions of the other chylificative viscera. I then saw both in myself and in many others afflicted with these fevers, that the eyes turned of a yellow colour, and the urine appeared as in a jaundice. There was an anxiety and sense of heaviness perceived about the præcordia, with a sickness at the stomach, and an aversion to food; and in some there was an obtuse pain in the right hypochondrium. But as physicians were over charged with great numbers of patients at this time, and more especially in the most populous cities, they generally gave the bark with very bad success; especially if they were not content to have brought about a truce, that the patient might recover strength; but upon the return of the fever immediately suppressed it again by the bark, or else prevented its return by a continued use of the same medicine. For many had swellings of the abdomen, and a countenance like tallow or wax, being extremely weak all the winter following; many perished when the foul humours lodged in the obstructed viscera, beginning to putrefy and to be put in motion in the spring-time, were followed with the most putrid diarrhœa or dysentery; and some died suddenly, without apprehending any thing, when a great quantity of blood, seemingly from the wasted liver, was expelled upward or downward. But when the foul bilious humours, which usually infest the first passages in intermitting fevers, were first expelled by a gentle vomit, and then decoctions of grass, succory, dandelion, the five opening roots, and the like, with honey, juice of elder-berries, sal polychrest, &c. were drank plentifully; the fever itself, moving these liquid medicines through all the vessels,

vessels, most happily resolved the obstructions of the viscera, and perfectly cured the patients; so that very few perished out of a great number, when treated by this method. The salutary effects of this method I have also since experienced in other years, when the like fevers have spread epidemically: nor did I ever give the bark, but when the great weakness of the patient required a respite of the disease; and even then I persisted in the use of such aperient and resolving medicines, till the fever returning now sooner and than later completed the cure. But I religiously observed, not to remove the returning fever by the use of the bark, after such respites had been procured; since this is always dangerous, if there is but the least suspicion of any of the viscera being obstructed. Hence Sydenham ^u, who was bold enough in the use of the Peruvian bark, yet cautions us, That “it ought to be observed, that if the patient, notwithstanding the observance of the cautions above delivered, should relapse, which happens seldomer in a *quartan* than in *tertians* or *quotidians*, it will become a prudent physician not to adhere too closely to the method of giving the bark at the above mentioned intervals, but to attempt the cure, as his judgment shall direct, by some other procedure.”

It is therefore evident, from what has been said, that the Peruvian bark is in its own nature an innocent medicine, and may be very safely taken into the body; the only detriment which Sydenham ^w observed to follow the long and repeated use of it, is, that it sometimes inclines the patient to a scorbutic rheumatism, which yet is easily curable by anti-scorbutic medicines. But besides this he knew not of any disorder brought upon the patient by the use of it.

But we may also affirm, that the Peruvian bark removes only the fever; and, when the fever is removed, that those changes continue in the solid and fluid parts which pre-existed either before the fever, and were not removed by the fever, or else have been produced

^u Epist. Respons. 1. p. 385. ^w Ibid. p. 376. et sect. vi. cap. 5. p. 351.

duced during the time of and by the fever itself. When therefore the fever can serve, as it often may, more speedily and happily to remove or correct those states of the solid and fluid parts deviating from the laws of health, the use of the Peruvian bark is prejudicial; as it also is when there is just reason to hope that the intermitting fever will cure some inveterate disorder, as an epilepsy, &c. or dispose the body to longevity and a more firm state of health.

Thus also we may easily reconcile the different opinions of physicians concerning the Peruvian bark, while some condemn the use of it universally, and others recommend it indiscriminately, both parties appealing to experience. But we are certain there is no one thing absolutely, at all times, and in all circumstances, an useful medicine; but is so only relatively, as it is seasonably and judiciously applied.

But the *corroborating* virtue of the Peruvian bark is indeed considerable, in which respect it is often of the most happy use in certain diseases, as we have already observed; but yet the efficacy of this medicine in subduing intermitting fevers does not seem to depend upon that quality of it, since the same effect does not so certainly follow from any other corroborating medicine. Hence it is justly termed a *specific* medicine, by the efficacy of which, discovered only by experience, it removes that latent impression of the nerves (see §. 757.) from whence the paroxysm of an intermitting fever is excited, and again renewed at a stated time; or at least, if it does not wholly remove it, it renders it unactive for a time, though in other respects no considerable alteration is observed by the use of it throughout the body.

Nor is it any objection to what has been said, that some people are at times purged by the Peruvian bark, as if they had taken a cathartic medicine*; for this does not frequently happen, and the generality of patients are cured of the fever by the bark without any sensible evacuation.

Indeed the celebrated Albertinus* assures us, that, after

* Sydenham, *ibidem*, p. 377, 378.

* *Instit. Bonon.* p. 163, 401.

after intermitting fevers cured by the bark, considerable evacuations had followed by stool, sweats, spitting, urine; more especially that, after taking the bark, patients have exhaled a very disagreeable and fetid smell, so as to be very troublesome to those who are present, which smell or vapour has continued until some other evacuation has followed by urine or stool, &c. But he is of opinion, that we may then expect good success from the medicine; and that a return is hardly to be feared, when, after the use of the bark, such evacuations, which he calls *critical*, ensue: But, when the contrary happens, he thinks a return is to be feared; and therefore advises the use of the bark to be repeated, till, such evacuations appearing, the patient recovers a perfect state of health.

But in the mean time it cannot be denied, as we observed at §. 757, that the fever ceases upon giving the Peruvian bark, even before these evacuations happen; and therefore that power of the bark which removes the fever, does not proceed from any evacuation of the morbid matter.

Upon reading what has been advanced by Albertinus, I began diligently to observe what happened to my patients after I had given them the Peruvian bark: that disagreeable smell exhaling from the patient's body I have never yet been able to observe; but I have sometimes seen, when the bark has been given in the more obstinate autumnal tertians, that, after the fever has been silenced for three or four days, the patients have had a flux from the bowels, or a vomiting, which has relieved them. But some have had returns of the fever notwithstanding those evacuations, and others have not. And I remarked moreover, that sometimes the bark cured the fever so that it never returned after, and yet there was no sensible evacuation to be observed. But those who have had a vomiting or purging from the bowels, have complained of a sense of heaviness about the præcordia, as soon as the fever has ceased by the use of the bark.

But since, as Albertinus testifies, various evacuations by urine, stool, spittings, sweats, &c. have followed,

lowed in this case, and sometimes very slowly; it therefore seems probable, that, when the fever is removed, the body, recovering its strength, is enabled, by the corroborating virtue of the Peruvian bark, to expel in various ways such parts of the humours as during the time of the fever have degenerated from their healthy state; or else, the fever being cured, those discharges proceed from the ingested aliments accumulated in the first passages and not concocted, because many patients are very voracious after the use of the bark; and therefore such evacuations do not depend, properly speaking, upon the efficacy of the bark, since they frequently appear only a long time after the use of that medicine. But in the mean time it seems sufficiently probable, that sometimes the occasional causes are removed by those evacuations, which had it in their power to excite into action that morbid impression upon the nerves on which the return of the fits properly depends (see §. 757.); so that when those causes were removed which excited that impression to act, the fits continued to be renewed by the proper force thereof. But from what has been hitherto said, I think it is evident, that the method is not without danger, which relies upon repeated exhibitions of the bark in expectation of those evacuations appearing, when there are no signs of them: for these evacuations often follow a long time after the bark has been given, and therefore cannot be properly ascribed to that medicine; and frequently such causes lie concealed in the body, for which the fever itself is not only the best, but even sometimes the only remedy.

It now remains for us to see what is to be observed in the use of the Peruvian bark, when it shall appear proper to remove the fever by that medicine, or at least to lay it dormant for a time by commanding a truce, that the patient may recover his exhausted strength.

It appears from those authors who have written upon the Peruvian bark, about the time when its use was first made known in Europe, that it was then usually given in substance, in the form of a powder, infused or diluted in wine. But afterwards, when some ill effects

effects followed from the imprudent administration of this medicine, certain physicians, imagining a malignity to be lodged in the gross substance of the bark itself, recommended various preparations of it, apprehending, without any foundation, I know not what mischief from the ligneous particles: hence they chose to give only a limpid infusion of it, even several times depurated by the filtre. But from what has been said, it is sufficiently evident there is no danger to be apprehended from the bark itself. It may be therefore given in the form of a powder; or made up into an electuary with honey, or with some officinal syrup. The best infusions of the bark are made with wine; and there is likewise a tincture of it commonly kept in the shops, made with spirit of wine. The Peruvian bark suffers boiling, without any loss of its virtues; and indeed requires it to be continued a long time in order to render the decoction strong or well saturated, it then appearing turbid, yellowish, frothy, and of an astringent bitter taste. If now such a decoction is evaporated to the thickness of honey with a slow fire, it yields an extract of the bark, which may be given under that form as an electuary, or mixed with some officinal syrup; or else, with the addition of powdered liquorice, it may be reduced into a solid mass, so as to form a bolus or pills: and various forms of this kind may be seen in our Author's *Materia Medica*, corresponding to this place. But when the patient has too great an aversion to the bitter taste of the bark, or when this is an obstacle to the taking of the medicine or the several preparations of it in children, a decoction of it may be then injected with safety and with equal success in the form of a clyster; or the powder only, diluted with water, has altogether the same effect; except that a greater quantity of the bark is necessary, namely, about three times as much as would suffice if taken by the mouth. But in this case it is convenient, first to cleanse the bowels by a clyster or two of honey, with sal gem. or the like, that there may be no obstacle from the fæces lodged in the large intestines, and that afterwards the decoction

prepared

prepared from the bark may be longer retained in the empty bowels. But at the same time it is to be also observed, as the intention of these clysters is for them to be retained in the body, they ought not to exceed five or six ounces in adults, and not above one or two in children, lest the quantity should irritate the intestines to an expulsion. I have often seen this method successful in young children. Helvetius^y, physician at Paris, who boasts himself to be the first inventor of this method, reckons up a great number of patients cured in this manner: but he made use chiefly of the powder of the bark diluted with some ounces of water, without any other additions, as most preferable.

With the addition of such other ingredients as may be suitable to the particular circumstances.] We are certain that the bark alone is sufficient for the cure of these fevers, and that therefore in this respect nothing more seems necessary to be added. Some have indeed added to the bark various other medicines, and oftentimes of an opposite nature, as mineral acids, volatile and fixed alkaline salts, neutral salts, as sal ammoniacum, &c.; others again have added purges, opiates^z, or spices; to correct something which they imagined pernicious in the bark. But in the mean time, from all these compositions, it appears that the bark is not easily changed from its usual power of curing intermitting fevers, producing the same effects whether given alone or with those various additions; except that, when purges are given at the same time with the bark, they weaken its efficacy by causing it to be sooner expelled by stool. Hence Sydenham^a usually gave laudanum at the same time with the bark, in such patients as were naturally inclined to be purged by it as with a cathartic medicine: by which means he restrained this evacuation so contrary both to the operation of the bark and the disease itself: but if a troublesome vomiting attended, he first allayed it with the juice of citrons mixed with the salt of wormwood, and

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afterwards

^y Method. omnes febres ita curandi, ut nihil ore assumatur, p. 4. &c.

^z Institut. Bononiens. p. 412. ^a Sydenh. Epist. Respons. 1. p. 382.

afterwards with liquid laudanum; otherwise he added nothing to the bark but what might serve as a vehicle, or to correct its bitter taste if the patient was young or delicate. Sometimes, indeed, additions of certain medicines are made to the bark, in order to change its colour and taste, that the patient may not know what he is taking, lest, being prejudiced with an ill opinion of it, he should afterwards unjustly ascribe to it all the disorders happening through the remaining part of life, as I have sometimes known, to the damage of the reputation of physicians. Thus, for example, fixt alkaline salts, added to the bark when it is boiling in water, render the decoction limpid, and of a deep red colour: whereas without them the decoction would appear turbid and yellowish. For the same reason the peels of oranges, citrons, cinnamon, and the like medicines, are added to alter the taste.

Betwixt the fits, when the fever is absent.] When the bark was first brought into Europe, two drams of it, beat to fine powder, was infused, about three hours before the fit, in a phial of strong white wine; and upon the invasion of the cold fit, or even upon the first appearances of the slightest symptoms, this whole dose was taken, and the patient afterwards put to bed; as appears from the *Schedula Romana*, or first paper publishing the use and preparation of the bark, which may be seen in Bartholin^b and many other authors who have written upon this medicine. But the exhibition of this bark at the time of the disease has been sometimes observed, though rarely, to succeed very badly; and Sydenham^c has observed, that some patients perished by this means; which brought this capital medicine to great disrepute. But he believed, not without reason, that the bark had then this fatal effect by smothering the fit in the beginning, and by that means hindering the patients from getting over the dangerous stage of the cold fit, in which they were suffocated, (see §. 749.). It will be therefore safest to begin the use of the bark when the fit is over;

^b Thom. Barthol. histor. anatom. et medic. cent. 5. p. 108.

^c Epist. Respons. 1. p. 379.

and to give this quantity in separate doses, so that the whole may be taken before the next fit is expected.

But when intermittents, by redoubling and prolonging their fits, resemble the nature of continual fevers, as frequently happens in autumn (see §. 748.), so that only a remission is observed without a perfect intermission; in such a case, Sydenham^d began to give the bark, as near as he could conjecture, in the time of the remission, just after the paroxysm; and from thence he continued it every four hours, without delaying even in the fit itself, because there was no other time allowed for a due quantity of the bark to be taken into the body. And he observes, that this method always happily succeeded, unless intermitting fevers were changed into continued ones by the constant heat of the bed, with the use of heating cordials, so as to run through their course in one strain without remission: for in such a case, he assures us, he had more than once observed the Peruvian bark to be of no service. In another place^e, he plainly cautions against the use of the bark, as not only useless, but prejudicial, in continual epidemic fevers and inflammatory diseases, as a pleurisy, peripneumony, quinsy, &c.

In a just order.] The order and method of taking the bark, chiefly recommended to us by Sydenham^f, is to exhibit the due quantity in separate doses at equal intervals, so that the whole quantity may be taken before the fit next following is expected. Thus, for example, for the cure of a quartan, he gave a dose of the bark every four hours upon the two intermediate days, and therefore divided his ounce into twelve equal parts. But when the fits of intermitting fevers invade at a less distance from each other, it frequently does not seem safe to take so large a quantity in so short a time, as that the whole quantity of the bark necessary for the cure may be taken before the next fit. Indeed, when this quantity is lessened, the following fit of the fever is not wholly removed, but it is generally diminished; and afterwards, by continuing the use of the bark betwixt the fits, the cure may be com-

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pleted.

^d Ibid. p. 383.

^e Ibid. p. 401.

^f Ibid. p. 381.

pleted. Even in another place, Sydenham ^a advises, in the cure of a quartan by the Peruvian bark, “ That
 “ it is best to impregnate, the blood with this medi-
 “ cine by degrees, and at distant intervals from the
 “ fit, rather than endeavour to stop it at once, just
 “ upon its coming: for by this means the bark has
 “ more time to produce its full effect in; and besides,
 “ the mischief is avoided that might happen by put-
 “ ting a sudden and unseasonable stoppage to the im-
 “ mediately approaching fit.” Therefore he advises the patient to take the quantity of a nutmeg night and morning, upon the days free from the fits, of an electuary made up with an ounce of the Peruvian bark and two ounces of the syrup of red roses.

In a proper dose.] Sydenham ^b observes, that an ounce of the bark is necessary for the cure of a quartan in adults; but that other intermitting fevers might be so subdued by six drams, *i. e.* three fourth parts of an ounce, as to procure a truce, if not a perfect cure. But since it appears, from what has been said before, that the bark has nothing dangerous in its own nature, there is therefore no necessity of scrupulously limiting the dose; but to prevent the return of a quartan after it has been cured by an ounce of the bark, he orders, that, upon the eighth day after taking the first dose, another ounce be given in the same order; and this he would have repeated even a third or fourth time after the same interval, more especially if the patient is weakened by profuse evacuations preceding, or has negligently exposed himself to the cold air. In another place he ^c would have the use of the bark repeated to the third time, always intermitting fourteen days betwixt.

But it is to be well observed, that if the fever ceases after one ounce of the bark taken, and the patient is in a languishing condition, complaining of a sense of heaviness or oppression about the præcordia, the urine appearing as in a jaundice, and the white of the eyes beginning to turn yellow, it is then not at all safe to prevent

^a Sect. i. cap. 5. p. 113.

^b Epist. Respons. i. p. 382.

^c Sect. i. cap. 5. p. 114.

prevent the return of the fever by repeating the like quantity of the bark : but, after giving the most aperient medicines, a return of the fever ought to be waited for, by which such disorders may be best removed as have appeared by their signs after the use of the bark. For I have always observed the worst consequences to follow, if the use of the bark was continued in these cases ; the reason of which is evident, from what has been said before.

One ounce of the bark in substance usually suffices ; but, if it is given in the form of a decoction, twice that quantity is necessary : but when it is injected by the way of clyster, thrice that quantity is generally administered ; and sometimes even more, especially if the clysters could be not long enough retained by the patient. For Sydenham ^k has observed, that the nearer the fever approaches to the nature of a continual one either naturally or by the use of a hot regimen, so much the greater quantity of the bark is necessary ; inasmuch, that he assures us an ounce and a half, or two ounces, have been employed by him for the removal of these fevers.

Under a due [regimen.] Sydenham ^l observes, that there is no need of the greatest exactness in this respect : yet he deservedly recommends aliments easy of digestion, and affording good juices ; because the patient, weakened by the preceding fever, cannot bear food of difficult digestion, without prejudice and danger of a return, since the dormant impression (§. 757.) is so easily excited into action again. But as the patient has often a keen appetite after the fever is removed by the bark, care must be taken to prevent too great a quantity of food from being ingested at one time, since the patient ought to eat sparingly and so much the more frequently. But Sydenham ^m always prohibited the use of summer-fruits and cold liquors. But he not only allowed, but even greatly approved of, a moderate use of wine. But more especially, care must be taken not to let the patient expose himself indiscreetly to the cold air ; for there is

B b 3

danger

^k Epist. i. Respons. p. 384.^l Ibid. p. 386.^m Ibidem.

danger of a return from nothing so much as this, as we said at §. 757.

Moreover, the same author^a observes, that intermitting fevers are more difficultly cured by the bark, if during the use of it the patient is continually confined to his bed.

But since, as we declared at §. 766. when the intermitting fever is removed, and the patient's strength restored, it will be convenient to repeat purges at proper intervals; it must be observed, that for some time after the fever is cured by the bark no purge must be exhibited, since even the mildest clyster of sugared milk will most certainly put the patient in danger of a return^o. This is to be more especially remarked; because many, perceiving that these fevers are often removed without any sensible evacuations, endeavour afterwards to discharge by purges the morbid humours, which they suppose to lie as yet concealed in the body.

§. 768. **B**UT likewise epithems are often serviceable, with inunctions of the spina dorsi, and the drinking of astringent medicines.

Besides the medicines hitherto enumerated, there are also some others recommended for the cure of intermitting fevers, and which have been sometimes observed happily successful.

Epithems.] Which are sometimes applied to various parts of the body, but generally to the pit of the stomach, to the wrists, under the hams or arm-pits, a few hours before the fit is expected. And if we recollect what was said in the comment to §. 757, considerable efficacy may be expected from such applications; since the latent character or impression from whence the return of the fit proceeds, seems to reside in the most subtle fluid, in the nerves, or in the common origin of them both; and therefore it may be often changed, or extinguished, by such medicines as can act with

^a Dissert. Epist. p. 467.

^o Idem, Epist. 1. Resp. p. 386.

a subtle fragrantcy upon the nerves and nervous spirits. Medical history supplies us with many instances of intermitting fevers cured by epithems. Thus Boyle^p tells us of himself, that being afflicted with a violent quotidian, which was in vain attempted to be cured by the usual methods, he was wonderfully relieved by the application of a cataplasm to the wrists, composed of two handfuls of bay-salt and fresh-gathered English hops, with a quarter of a pound of dry currants beat together. For the same purpose he likewise recommends many other things; as foot with turpentine, the herb yarrow sewed up in a bag and applied to the stomach, ^q &c. Even the common groundsel, beat to a poultice, and applied cold to the wrists on the intermediate day, we are told has cured intermitting fevers^r. Such like remedies may be safely enough tried: but in young children, who often reject every kind of medicine, they are more especially useful; possibly from the greater irritability of the nervous system, which in this tender age is more easily affected by such external applications. Yet it must be confessed, that intermitting fevers are not always to be removed by these means; for Mr Boyle^s himself owns, that the cataplasm made of hops, salt, and currants, has sometimes failed of success.

Other things of the like kind are also recommended, which stimulate or irritate, inflame, and even frequently corrode, the parts to which they are applied; and which prevent the cold fit in the beginning, by exciting a greater heat throughout the whole body. Thus there was a country man in a neighbouring village, who cured many of intermitting fevers by meadow crow's-foot beat to a poultice, and applied betwixt the fingers; whence followed most troublesome heat, pain, and erosion of the tender skin in those parts; whence the fever itself was often suddenly cured.

Forms of such epithems may be seen in our author's
Materia

^p De Utilitate Philosophiæ Experimentalis, Exercitat. V. cap. 10. sect. viii. p. 275. ^q Ibid. sect. ix. p. 276. et in additionibus ad priorem sectionem partis secundæ, p. 435. ^r Medical Essays, Vol. II. p. 47.

^s De Utilitate Philos. Experiment. Exerc. V. cap. 10. p. 275.

Materia Medica, corresponding to the number of the present aphorism.

Inunctions of the *spina dorſi*.] It was the method of the ancient phyſicians to prevent the cold fit by warm bathing, violent frictions, and inunctions with heating liniments, as is evident from what has been ſaid at §. 756, 758, 761. But ſince there are innumerable nervous trunks which come out from the *ſpina dorſi*; and as the febrile paroxyſm ſeems to be attended with an inactivity of the nervous juice (ſee §. 755.) as we often obſerved before; therefore they violently rubbed the whole *ſpina dorſi* with woollen cloths, an hour or two before the fit; and then they anointed it before the fire with ſome penetrating aromatic liniment, the form of which may be likewise ſeen in the *Materia Medica* correſponding to this place. Such inunction of the *ſpina dorſi* is often happily ſucceſſful in the cure of theſe fevers, which ought generally to be repeated ſeveral times before the next fit following: for it ſeldom cures immediately, though it commonly affords ſome relief. Hence Celfus recommending the like method, adds, That it ought not to be laid aſide even though the fits return, for that frequently perfeverance in the uſe of medicines ſubdues the diſorder of the body^t.

And the drinking of aſtringent medicines.] It is a frequent practice with the common people, to give the patient alum and nutmeg; a form of which may be ſeen in the *Materia Medica*, at the number of the preſent ſection. Others recommended plantane, tormentil, and the like aſtringents. The uſe of the like medicines ſeems alſo to be recommended by Hippocrates^u. For in a tertian fever, if the fit came a fourth time, he gave a purging medicine; but when the patient did not ſeem to require a purge, he gave the quantity of a ſalt-feller full of the powdered roots of cinquefoil in water. Aſtringents are convenient enough when the humours are too thin or diſſolved, either naturally or by diſeaſe, ſo as to render the patient ſubject to profuſe ſweats: but when

^t Lib. iii. cap. 12. p. 142.

^u De Morbis, lib. ii. cap. 13. Charter. Tom. VII. p. 565.

when there is too great a thickness of the blood from a dissipation of its more fluid parts, or when the obstructed viscera rather require resolving and attenuating medicines, it is evident enough that the use of astringent remedies is to be condemned.

§. 769. **F**OR the cure of every individual kind of intermitting fevers, let it be observed, 1. That those which are truly intermitting go off sooner, as the interval of time or intermission betwixt the fits is less; and the reverse: 2. And again, that they come so much nearer to the nature of continual fevers, and are the more likely to be changed into them; 3. And that the cause is probably so much the more moveable and more abundant: 4. Hence vernal intermittents go off spontaneously as the warm weather advances; 5. but autumnal intermittents increase as the cold advances: 6. And from hence it is evident, which kind of these fevers requires to be treated with medicines, and what kind of medicines they ought to be.

We have hitherto considered the general treatment and cure of intermitting fevers; we come now to certain corollaries or deductions taken from the preceding, and belonging to the prognosis and cure of the several kinds of intermittents.

It was the opinion of Sydenham, as we said before at §. 757, That the principal difference betwixt continual and intermitting fevers, consisted in the former running through their progress in one continued strain from the beginning to the end, while intermittents perform the same thing at separate times: But he believed, that almost the same space of time was necessary to be employed, both in continual and intermitting fevers, to depurate the mass of blood by the fever. Therefore from this doctrine the reason is evident, why intermitting fevers which have a less interval of
time

time betwixt the fits, terminate sooner than others. How far this is true, has been said before. But hence it will follow, that a quotidian fever terminates sooner than a tertian, and a tertian than a quartan, &c. Yet this rule does not seem to be universally true. A quartan is allowed, by the general consent of all physicians, to be of longer duration than a tertian; hence Hippocrates pronounces a quartan fever to be the longest and safest, or least hazardous to the patient's life. See the comment to §. 558.

Sometimes, indeed, a tertian fever runs out to several months; but this rarely happens, and generally only when a perverse method of cure has been attempted by violent and repeated evacuations, as we observed before; and quartan fevers treated in the same method, have sometimes continued for years. But whether or not this rule holds in quintan, sextan, and other intermitting fevers, that they are so much the more obstinate as the interval of time betwixt the fits is greater, I cannot easily say, since such fevers are very rarely met with in these low countries. But at least it seems evident, from what has been said at §. 746. from the observations of physicians, that this does not always happen; since a quintan fever, for example, will sometimes cease after a few fits, and sometimes it will continue for eighteen months.

But the quotidian fever seems to be the most frequent exception from this rule; since it is often more obstinate than a tertian, as I have frequently experienced myself, and as I find it has been remarked by other writers. Thus Hoffman^w testifies, that a quotidian fever is of longer duration, being often protracted to several months. Galen^x makes phlegm the cause of a quotidian, because of a cold, sluggish, and glutinous humour; which is more difficult to subdue and expel than bile, to which he ascribes the cause of a tertian. From hence it seems to follow, that he also acknowledges a quotidian fever to be of longer duration; but in another place he expressly says that a quotidian

^w Medicin. Rational. et Systemat. Tom. IV. part. i. p. 88.

^x De Febribus, lib. i. cap. 4. Charter. Tom. VII. p. 130.

dian fever is of long duration, and not without danger *. Perhaps to this may relate the following aphorism of Hippocrates: *In those intermitting fevers wherein the fits invade upon the same hour of the day that the fever went off the day before, the termination or removal of them is difficult* †. Galen ‡, in his commentaries to this place, would have the sense of the present aphorism to be, That if, for example, any one is taken with a fever about the third hour, which fever goes off at another hour, the fever will return at the third hour of the next day, as also at the same hour of the day after, and so on; and that in this case the patient will be afflicted for a longer time. But such a fever is truly an intermitting quotidian; and therefore we may from hence conclude, Hippocrates testifies such fevers to be of long duration. And if we are thus to understand the aphorism, his remark, *Si postero die eadem hora febris prehenderit*, “If the fit come on upon the same hour the day after,” seems to be very proper, namely, to distinguish a quotidian fever from a double tertian, with which Celsus § seems to have confounded it. For from observation it is evident, that a double tertian seldom or never invades at the same hour of the day; but that the fits follow each other upon alternate days, both with respect to the time of their invasion and the concomitant symptoms. Galen indeed observes, in the place before cited, that some have given another sense to this aphorism, and would have it understood, That if, for example, a person is invaded by a fever, and the fever terminates at the twelfth hour; if then on the day following a new fit comes on at the twelfth hour, that then such a disease will have a difficult crisis. But at the same time he observes, those who think thus can support their opinion neither by reason nor experience, whereas the former opinion is proved by experience.

2. For

* Method. Med. ad. Glaucon. lib. i. cap. 9. Charter. Tom. X. p. 352.

† Quibus accessiones fiunt, quacunque hora febris dimiserit, si postero die eadem hora prehenderit, difficilis sunt judicationis. Sect. iv. Aphor. 30. Charter. Tom. IX. p. 151.

‡ Ibidem.

§ Lib. iii. cap. 3. p. 116.

2. For if the fit of a quotidian fever runs out to a great length, there is hardly any time for a true intermission; and even sometimes they really turn into continual fevers, as Celsus well observes in treating of quotidian fevers: *Again, some of these terminate so as to leave the patient perfectly well; and others so, that although the fever is indeed in some measure lessened, yet nevertheless some remains of it continue until another fit comes on; and oftentimes others have little or no remission, but continue as they began*^b. Also in tertians, more especially such as are autumnal, by the prolongation and reduplication of the fits they frequently resemble continual fevers; but in quartans this very rarely happens, because there is so long an interval betwixt the fits. Hence Celsus says, *That a quartan kills nobody: but if it turns to a quotidian, the patient is in a bad case; which yet never happens unless by some fault, either in the patient, or in the person who undertakes the cure*^c. Sometimes triplicate quartans appear, and therefore the fits prolonged may change them into continual, though this seems to happen not very frequently: but in the mean time autumnal continual fevers are sometimes observed to turn into quartan intermittents, after the violence of the disease has been subdued, as we before remarked from Sydenham. But for quintan and other intermitting fevers, which have longer intervals betwixt the fits, to change into continual, does not appear from any observations that I know of.

3. Upon this subject, consult what has been said in the comment to §. 757.

4, 5. See what has been said at §. 747. upon this subject. It was also remarked in the comment to §. 757. that cold holds a principal rank among those causes which are able to excite the febrile impression
not

^b Rursus aliæ sic desinunt, ut ex toto sequatur integritas: aliæ sic, ut aliquantum quidem minuat ex febre, nihilominus tamen quædam reliquæ remaneant, donec altera accessio accedat: ac sæpe aliæ vix quidquam aut nihil remittunt, sed ita, ut cœpere, continuant. *Ibidem*.

^c Quartana neminem jugulat: sed, si ex ea facta est quotidiana, in malis æger est: quod tamen, nisi culpa vel ægri vel curantis, nunquam fit. *Ibid. cap. 15. p. 146.*

not yet entirely abolished, so as to put it into action. It will therefore seem not at all wonderful, if the accession of cold should increase an autumnal fever, since it is able to excite it when dormant. Moreover, it was remarked, in the cure of intermitting fevers, to be frequently of service to make the patient a little warmer than usual betwixt the fits when the fever is off, and especially about the time of the approaching paroxysm; but the moderate warmth of the air in the spring, we see, performs that which we otherwise attempt by art.

6. Vernal intermitting fevers, as we observed before, are of so mild a disposition, that they require no medicines, but generally go off spontaneously. They are only observed stubborn for some time in people whose blood, being of a very weak crasis or texture, is so easily dissolved, that they waste away with profuse and weakening sweats; but even in these they are cureable, especially by the use of the Peruvian bark. But autumnal intermittents are much more difficult to remove; and often require the greatest attention of the physician, with many assistances of art, in order to cure them. But the method of cure which they require, varies according to the nature of the epidemical constitution or season known by a faithful observation, with the different age, habit, &c. of the patient, the flux of humours lodged in the first passages, the obstructions of the viscera attending the fever, &c. concerning all which we treated before.

But although such different remedies may seem necessary; yet, as Sydenham^d justly observes, they may be reduced to two distinct classes. “For either the
“method ought to be followed, which nature herself
“carefully observes in the removal of this disease;
“wherein we endeavour to hasten the fermentation
“begun, and by that means restore the patient to
“health: or else, by penetrating into the specific cause
“itself, we must use our endeavours to bring about
“the same effect by powerful and specific remedies.”
Thus, for example, in autumnal tertians, we frequently

observe, that, in the time of the fits, the patients frequently evacuate a great quantity of bilious humours upwards and downwards to their no small relief; and therefore in the like case the physician imitates nature by art. Thus we see, when a sweat arises in the end of a fit, that all the symptoms are relieved; and therefore such a sweat is advantageously promoted with very good success, by the use of such things as very moderately and a long time promote sweat by increasing the quantity of the fluids, (see §. 764.) Thus it was observed, that an autumnal quartan, increased by the winter's cold, gradually dissolved, and vanished by the warmth of the spring following: and therefore physicians, with very good success, keep up the patient's strength with a corroborating diet, of food easy to digest, and drinks of the stronger kind, that they may be able to support what must be borne for a considerable time; and they likewise arm the body against the cold, by medicinal wines made of bitters and spices, which excite the languishing actions of the chylicative viscera. But when the warmth of the spring begins to approach, in the month of February; then more especially care must be taken not to disturb the body by taking indigestible food, or by any other fault in the diet; which is also very well admonished by Celsus, *But as an inveterate quartan is seldom removed but in the spring, therefore great care must be taken at that time, not to do any thing that may be repugnant to health* ^e. But since about this time a considerable alteration is observed to happen in the bodies of animals, and the constitution of epidemical diseases is then changed, as we observed before; therefore physicians prudently endeavour to increase the efficacy of the vernal warmth by heating remedies, and generally with the best success; whereas otherwise, if such remedies were used before, this method would often be attended with danger. Hence Sydenham ^f advises the patient about that time, to undergo some considerable alteration in the

^e Cum vero vetus quartana raro, nisi vere solvatur, utique eo tempore attendendum est, ne quid fiat, quod valetudinem impediat, *Lib. iii. cap. 16. p. 147.*

^f Sect. i. cap. 5. p. 115, 116.

the air, either by travelling into some warmer climate, or at least by changing the place where the disease first invaded the patient. But he would not have this attempted sooner than about the beginning of February. But when this change of place cannot be commodiously complied with, he then gave warm medicines at that time, “in order by one effort, as it were, powerfully “to promote the languishing depuration of the blood, “and, if possible, to complete it.” Thus Celsus observes, it is also of use to sometimes change the diet in an inveterate quartan; and, before the fit, to let the patient drink vinegar and mustard, strong wine, salt, pepper, castor, assafoetida, myrrh, &c. for that by these and the like medicines the body is to be put in motion in order to change the state in which it is at present held ^b. But if these hot medicines are given sooner, they double the quartan, or sometimes change it into a continual fever; as Sydenham prudently observes, and as Galen ⁱ long ago remarked. From all which it is sufficiently evident, that the general method for curing intermitting fevers, made use of by the ancient physicians, and confirmed by the testimonies of the moderns, is almost nothing more than an imitation of the methods which nature herself prosecutes to free the patient from these diseases.

But the other method which penetrates into the *specific cause* of the fever itself, as Sydenham expresses it, differing from the preceding method, is either such as, by disturbing the body, produces an alteration or change in it; or else removes that latent disposition from whence the fits are renewed: as when we use purges or vomits, not so much to make evacuations, as to produce an alteration in the body (see §. 760); or when, by drinking some thin aromatic liquor, with the warmth of the fire or of the bed, with frictions, inunctions of the spina dorsa, epithems, &c. we endeavour to subdue the first time of the febrile paroxysm and its first cause, (see §. 756). But that method of curing intermitting fevers which is performed by the Peru-

^g Lib. iii. cap. 16. p. 147.^h Ibidem.ⁱ Method. Med. ad

Glauccon. lib. i. cap. 12. Charter. Tom. X. p. 356, 357.

vian bark more especially deserves to be termed *specific*, since it is accomplished without any disturbances or evacuations. But, when this method of cure is convenient, and under what circumstances it may safely be administered, has been said before at §. 767.

We have now delivered the general history and treatment of fevers: we have also considered and explained the nature and cure of the most common and urgent symptoms which usually attend fevers: and, lastly, we have treated of the general classes of fevers, namely, Continual, Remitting, and Intermittent; and we have remarked every thing which seemed necessary, either with respect to the diagnosis, prognosis, or cure, of each of these classes, so far as they differed from what was laid down in the general history and treatment of fevers. It now remains for us to treat concerning Acute Diseases, which are indeed usually accompanied with a fever, but which have nevertheless their denomination not from the fever, but from the injured function of some organ by a particular inflammation.

Of ACUTE FEBRILE DISEASES.

§. 770. **W**E come now to consider those acute diseases, which, though accompanied with a violent fever, do nevertheless occasion a particular inflammation in this or that organ, whence a name is given to the whole disease from the injured function of the organ. Such are, A frenzy, coma, carus, quinsy, peripneumony, spitting of blood, pleurisy; inflammation of the breasts, of the diaphragm, stomach, liver, spleen, mesentery, intestines, (whence dysenteries, iliac passions, twisting of the guts, tenesmus, the piles, bilious colics), kidneys, bladder, ureters, uterus, and joints, or of the external integuments, as in the measles or small-pox.

What

What diseases may be termed acute, has been said before in the comment to §. 564. namely, such as either speedily kill the patient, or soon come to a period; and in which the symptoms and pains urge violently, and without intermission. We also there observed, that a fever is called acute, when it runs through its course swiftly and with danger.

But though all the diseases here enumerated are attended with an acute fever, so that much light may be afforded in the cure of them from what has been already said of fevers, as also from what has been said under the title of Inflammation; yet it will be worth our while to treat of each of them separately; since, according to the diversity of the parts affected, there are several peculiarities which deserve to be remarked, both in the diagnosis, prognosis, and cure.

But since in these diseases there is a particular inflammation of this or that organ, they are not simply termed acute fevers, but take their name from the injured function, as Galen well observes. For after treating of diary fevers, he says, *But among other fevers, some arise from inflammation, and others from morbid humours. Those which arise from inflammation, are in a manner symptoms of the inflamed parts; and the disease commonly takes its denomination from the affected organ, as a frenzy, peripneumony, and the like^k.*

The whole difference therefore, in these diseases, depends upon the parts affected, where the inflammation is seated; and these diseases may likewise change into other inflammatory ones of the like kind, when, the acute fever and inflammation continuing, the particular part of the body only is altered towards which the inflammatory matter is deposited. Thus inflammations of the pleura, lungs, and diaphragm, often change into a phrenzy, as we shall declare hereafter. Thus an inflammatory quinsy is relieved, when the external in-

C c 3

teguments:

^k Aliarum vero febrium quædam ex inflammatione, quædam ex humoribus accenduntur. Et quæ ex inflammatione, velut inflammatarum partium quædam symptomata sunt, morbusque ab affecto organo denominationem fere accipit, ut phrenitis, peripneumonia, et alii similes. *Method. Med. ad Glaucon. lib. i. cap. 3. Charter. Tom. X. p. 349.*

teguments of the neck and breast are invaded with an erysipelas or a phlegmon; the inflammatory matter, which before oppressed the fauces, being now fixed in the more exterior parts.

In these diseases, therefore, there is more or less danger according to the nature of the part towards which the inflammatory matter is deposited by the fever; concerning which, see what has been said in the comment to §. 593, of the termination of a fever into another disease.

There are therefore three things to be considered in acute inflammatory diseases; namely, the acute continual fever, the inflammation, and the organ whose functions are injured by the present inflammation: and a careful attendance must be given how far the general method of treating fevers and inflammations before described is agreeable to these diseases, and what is further necessary in each.

But these acute inflammatory diseases are enumerated in order, beginning at the head, and descending to the lower parts; and therefore a frenzy comes first to be considered, as the last is an inflammation of the uterus: but to these are afterwards subjoined inflammations of the joints, and outer integuments of the body, as in the measles and small-pox. Yet we shall not exactly observe this order in treating of these diseases hereafter. For concerning a Coma, we treated before among the symptoms of fevers; and with respect to a Carus, since it is a slight sort of apoplexy, it will be better understood if we treat of it after the history of an Apoplexy. But as a preceding hæmoptoë or spitting of blood is so frequently followed with a phthisis, we shall therefore treat of it in the chapter of a Phthisis. As inflammation of the breasts seldom happens but in child-bed women or in such as give suck, we shall speak of that when we come to treat of the Diseases of Lying-in Women. But an inflammation of the spleen may be easily understood from the history of an Inflammation in the Liver, as we shall observe hereafter at §. 958. Thus also an inflammation of the mesentery requires the same treatment with an inflam-

mation

mation of the intestines; from whence also may be derived a knowledge of what relates to a dysentery, iliac passion, involution of the guts, tenesmus, and piles, so far as all these diseases arise from inflammation. But a bilious colic may be more especially understood from the history of inflammation in the liver. But what relates to the inflammation of the ureters or bladder, may be partly understood from the history of a nephritis or an inflammation in the kidneys, and partly from what will be said hereafter of a calculus or stone in the bladder and ureters. Concerning an inflammation of the uterus, there is likewise no particular place assigned to treat of it in these aphorisms; but we may have an opportunity to say something of it among the diseases of child-bed women, since this disorder most frequently happens in the delivery. Inflammations of the joints, may be likewise understood from what will be said concerning the Gout and Rheumatism. But as the Small-pox is a disorder most frequent amongst young children, therefore we shall treat of that after the diseases of infants. Concerning the Measles there is no particular treatment, perhaps because what relates to the knowledge and cure of these may be derived from what has been said concerning Febrile Exanthemata or Eruptions.

Of a FRENZY.

§. 771. **I**F a perpetual delirium, with a fierceness, arises from the brain primarily affected, the disease is called a True Frenzy.

If it arises from a disorder in some other part transferred to the brain in a fever, inflammation, &c. it is called a Symptomatic Frenzy, a desipency, or an alienation of the mind, (*παράφροσυνη, desipientia*.)

The word *phren* among the Greeks signifies the mind, and *phrenas* is used by them to signify wisdom or sense; whence *phrenitis* (*quasi των φρεων νοσος, uti αρθριτις των αρθρων, ac πλειυριτις των πλειυγων*) means a disorder of the sense,

sense, ¹ &c. for it seems to have been customary with the ancient physicians, to add the termination *itis* to a name denoting the part affected; more especially when they intended to signify an inflammatory disease of the same part, as is evident in the *hepatitis*, *nephritis*, &c. They therefore called a disorder in that part of the body where the human mind is exercised, by the term *phrenitis*, which is therefore denominated by Pliny ^m *sapientiae agritudo*, a disorder of the sense or wisdom, where he enumerates from Hippocrates the fatal signs in this disease. But since both raving and melancholy mad people are likewise disordered in their sense or wisdom, therefore Celsus has judiciously distinguished a frenzy from these diseases, by saying, *I shall begin with madness; and first proceed to that kind of it which attends an acute fever: The Greeks call it Phrenitis* ⁿ. But to distinguish a frenzy from a *delirium*, (concerning which we treated at §. 700. among the symptoms of fevers), he remarks, that sometimes indeed, in the height of the fever, the patient is *desipient* or alienated in mind, and talks improperly; yet, after the violence of the fever is abated, he recovers his right mind: *Phrenitis vero tum demum est, cum continua dementia esse incipit; aut cum æger, quamvis adhuc sapiat, tamen quasdam vanas imagines accipit: perfecta est, ubi mens illis imaginibus addicta est*: “But it is at length a frenzy, when
 “the mind begins to be continually alienated, or
 “when the patient entertains some vain imagina-
 “tions or ideas, although he is yet in some measure
 “sensible; but a perfect frenzy is when the mind
 “firmly adheres to, or believes, those false imagina-
 “tions or ideas.”

But it was observed in the comment to §. 700, that where this internal disposition of the brain causing the delirium is so fixed, that it equals or even exceeds those changes of the common sensory which arise from external objects acting upon the organs of sense; it is often followed by the judgment, and violent passions

of

¹ Salmas. Epist. 36. p. 79.

^m Hist. Nat. lib. vii. cap. 51. p. 166.

ⁿ Incipiam ab insania, primamque hujus ipsius partem aggrediar, quæ et acuta, et in febre est. Græci *phrenitis* appellant. Lib. iii. cap. 17.

of the mind; and then there is a fierce delirium, in which the patient endeavours to injure himself or the bystanders.

There is therefore a perpetual delirium, with an acute continual fever, attending in a true frenzy; and this delirium is commonly fierce or raving, from the violent change made in the common sensory. But this fierceness does not always attend, as we proved before in the comment to §. 700; and this especially when the ideas, arising from such a morbid change in the common sensory, are not attended with the pleasure or displeasure that usually excites passions of the mind, but are adiaaphorous or attended with a sort of indifferency. That there are such frenzies, and indeed of the worst kind, in which the patient is obscurely delirious, without any raving, has been before demonstrated from Hippocrates and Galen under the section last cited.

Another thing to be observed in a true frenzy, is, that the brain is primarily affected in this disease: that is to say, the cause of the disease is not produced in some other part of the body, and transferred from thence to the brain; but it is seated in the brain itself, or its investing membranes, from the very first attack of the disease, although by the violence of the fever the disorder may be increased which is already seated in the brain. For the ancient physicians call the disorder a true and exquisite frenzy, only when the brain itself is primarily affected. Thus Galen says, *That indeed an exquisite frenzy, not mixed with any other disease, arises from yellow bile invading that part where the principal faculties of the mind reside*°. And in another place, *That if yellow bile fixes itself in the brain or its membranes, it causes a frenzy; but if it flows through the vessels before it thus fixes itself, it produces not a frenzy, but a delirium in the height of fevers* P. But although we at this day know that a frenzy

° Phrenitis siquidem exquisita, et non permixta alteri morbo, fit bile flava locum, in quo princeps animæ pars residet, prehendente. *Comment. 1. in lib. i. Prorethecor. Hippocrat. Charter. Tom. VII. p. 694.*

P Flava bilis, si in cerebrum ipsiusque membranas se firmaverit, phrenitides

frenzy may be produced from other causes, and that it does not always arise from yellow bile; yet the passages cited from Galen demonstrate that he was of opinion, that, in a true frenzy, the brain itself or its membranes are primarily affected; as indeed he expressly declares in another place, by saying, *That the brain itself is not affected by consent in a frenzy, but labours under a proper and original disorder in itself**. The like is also affirmed by Cœlius Aurelianus, who has carefully collected together the opinions of the Greek physicians, according to their division into separate parties or sects, and gives us the following passage from Asclepiades: *A frenzy is a stagnation or obtrusion of corpuscles in the membranes of the brain, frequently arising without any consent or distant cause, with an alienation of the mind, and a fever^q*.

But when that which is now lodged in the brain or its membranes, so as to produce a frenzy, was before formed or collected in some other part of the body, and excites disease by disturbing the functions of those parts in which it resides; but afterwards, being set at liberty from the part first affected, if it is translated from thence by metastasis to the brain or its membranes, and excites a fierce or perpetual delirium with an acute continual fever; the disorder is then also termed a frenzy; but because the brain itself was not primarily affected, but only secondarily, therefore it cannot be called a *true* but a *symptomatic* frenzy. But in both cases the same part is affected; and the matter of the disease is the same, namely, inflammatory: so that the whole difference betwixt a true and symptomatic frenzy, is, that, in the latter, the cause disturbing the brain was first lodged in some other part, and afterwards translated to the encephalon. For
since

nitides efficit. Priusquam autem se firmaverit, per ipsarum venas disfluens, non phrenitides, sed in febrium vigoribus deliria invehit. *Comment. 2. in lib. i. Epidem. Charter. Tom. IX. p. 69.*

* Neque enim per consensum in eo morbo cerebrum afficitur, sed propria et primaria affectione laborat. *De Locis Affect. lib. v. cap. 4. Charter. Tom. VII. p. 489.*

^q Phrenitis est corpusculorum stasio, sive obtrusio in cerebri membranis frequenter sine consensu, cum alienatione et febribus. *Autor. Morbor. lib. i. in Praefat. p. 2.*

since we here treat only of inflammatory diseases joined with an acute fever, we have no concern with such causes as, being seated in other parts of the body, are able to disturb the brain, so as to produce the most wonderful and fierce deliria; even though the causes remain in their first seat, and are not translated by metastasis to the brain itself or its membranes; concerning which, see what has been said in the comment to §. 701. For it was there proved, that foul humours collected about the præcordia may disturb all the functions of the brain; but in such a manner, that, when they are expelled, the functions of the brain immediately return to their healthy state: and therefore it is justly concluded, that no topical cause attended in the brain at the time when its functions were disturbed, but that the cause of all those disorders was lodged in other very distant parts.

But this distinction betwixt a true and symptomatic frenzy is necessary, because a great difference is often required in the treatment or cure of these two kinds of the disorder, as we shall declare hereafter at §. 782. But sometimes such a symptomatic frenzy is called a *desipency*, or alienation of the mind; though with less propriety, since the ancients have by that name (*παρὰφροσυνη*, *desipientia*) intended a delirium which is not perpetual, but attends only in the height of fevers; as is evident from the several passages cited from Galen^r, and as we observed before in the comment to §. 700. But now, as there are various kinds of deliria according to the different degree of the morbid disposition in the brain; so the same is likewise true of a frenzy, as is evident from the passage of Galen, where he says, *For some phrenitic patients do not err in their natural understanding and knowledge of things which fall under the examination of their senses, but only they are out in their judgments: others, on the contrary, are not at all deceived in their thoughts or judgment, but only the organs of the senses are disturbed or moved; but there are others again, who are disordered both in their*
organs

^r Vide Foesii Oeconomiam, et Gorraei Definitiones, ad vocabulum *παρὰφροσυνη*.

organs of sense, and in their thoughts or judgment, at the same time^s. Galen confirms what he here says, by instances both in himself and others.

§. 772. **A** TRUE frenzy is preceded by a violent inflammatory heat and great pain within the head, by a plethora or too great a quantity of blood, or an inflammatory disposition of it, a redness of the eyes and face, a disturbance of the sleep, a slight deficiency, youthfulness, the use of heating things, exposure to the sun, over-watchings, anger, grief, crossness or fierceness of temper, sudden forgetfulness, a dryness of the whole body, but especially of the brain, and a gathering or catching at something supposed to lie upon the bed-clothes.

We come now to treat of the antecedent signs or causes which usually go before a frenzy, whether true or symptomatic. For as this disorder is so dangerous, and so difficultly curable when it is fixed, all endeavours must be used to know whether there is just reason to fear it, that so the most efficacious remedies may be timely applied, whereby a future frenzy may be prevented, or that which is beginning to be present may be directly removed. But we know that a frenzy is at hand, when such causes have preceded as are disposed to excite inflammation, especially in the head, or if the inflammation formed in other parts is determined thence towards the head, as also if in acute fevers there appear signs of an injury in the functions of the brain. But each of these are to be separately considered.

A violent inflammatory heat, and great pain within the head.] When we treated of the signs of inflammation

^s Quippe phrenitici quidam in rebus sub aspectum cadentibus dignoscendis nihil errantes a naturali intellectus judicio aberrant: alii contra cogitatione quidem falluntur minime, sensibus tamen difformiter moventur: sunt præterea qui sensus simul et cogitationis vitio laborant. *De Locis Affectis, lib. iv. cap. 2. Charter. Tom. VII. p. 454.*

mation (§.382.), it was demonstrated, that a pricking pain from the small fibres of the distended vessels being near to breaking, and an increased heat, with a fever, and a sense of throbbing or pulsation, attended in every inflammation. And from these signs chiefly we judge of the presence of an internal inflammation; when the other signs, as tumour, redness, tension, or hardness, &c. can only be perceived in external parts of the body inflamed. When therefore, in an acute fever, a violent and constant pain attends in the head, with a sense of great heat and pulsation, we know an inflammation is to be feared in the meninges of the brain; which inflammation is the proximate cause of a true frenzy, as we shall hereafter demonstrate at §. 776. For that the cortical part of the brain, tho' inflamed, is not sensible of pain, seems very probable from what has been said of that part, in the History of Wounds of the Head. For it there appeared, that excrescences of the brain might be tied, cut off, or corroded, without pain. Therefore this internal pain of the head seems to arise from the distension of the vessels dispersed through the membranes of the encephalon, by too great a quantity of blood impervious from an inflammatory tenacity. Hence also Galen^t places the cause of an obstinate head-ach in the meninges of the brain. It is indeed true, that not every pain of the head, in acute inflammatory fevers, is seated in the meninges of the brain; since a head-ach may be excited, by consent, from other parts of the body disordered; as for example, when corrupt bile is lodged about the præcordia; as we have already often observed, and as Galen^u himself has remarked. But the heat and other signs of an internal inflammation in the head, readily demonstrate to which of these causes the pain of the head ought to be ascribed. Hence therefore Trallian^w has well distinguished frenitic patients from those which have a sympathetic delirium,

Vol. VII. D d because

^t De Locis Affectis, lib. iii. cap. 13. Charter. Tom. VII. p. 448.

^u Method. Med. ad Glaucon. lib. i. cap. 16. Charter. Tom. X.

p. 364.

^w Lib. i. cap. 13. p. 45.

because in a frenzy the head is hotter. Concerning which, see what has been said at §. 701.

Hence the reason appears why Hippocrates ^x condemns continual and intense pains of the head as fatal in fevers; and observes, that the same in acute diseases presages a frenzy, unless prevented by a salutary hæmorrhage from the nose ^y.

A plethora or too great quantity of blood.] It was demonstrated in the comment to §. 106. that the arteries both sanguiferous and lymphatic might be over-dilated merely from too great a quantity of blood, so as to produce an inflammation and its many consequent disorders. In the same place it was also proved, that the functions of the encephalon might be especially disturbed by a plethora. All which will be greatly increased, when the blood, rarefied by the febrile heat, still more distends the vessels in which it is contained: and therefore it is evident why a plethora is justly ranked among the antecedent causes of a frenzy.

An inflammatory disposition.] This is said to attend when people are from a natural habit inclined to inflammatory diseases. But such diseases happen to those people chiefly who have strong and contracted vessels, with dense and acrid humours moving swiftly through the vessels. The pulse in such people is commonly larger and quicker, the body thin, active, strong, and warm. The bodies of people daily accustomed to hard labour acquire such a disposition. This diagnosis is confirmed, if they have before laboured under acute and inflammatory diseases.

A redness of the eyes and face.] For this denotes that the blood is conveyed too copiously and impetuously to the head, so as to over-distend the vessels. The blood is indeed distributed to the face chiefly by the branches of the external carotid; but is conveyed to the eyes also by small branches of the internal carotid, and therefore from this sign we know that the internal parts of the head are affected in the same manner. For this reason, a redness of the face and eyes

^x In Prognostic. Charter. Tom. VIII. p. 6c6, 671.

^y In Coac. Prænot. n^o 120. ibid. p. 858.

eyes was reckoned among the signs of a future hæmorrhage at §. 741.

A disturbance of the sleep.] If together with the preceding signs of an inflammatory disposition in the blood, and its too great determination towards the head, there arises the troublesome symptom of restless watchings, which physicians usually call a *coma vigil*, (see §. 703.) namely, when the patient, being on the brink of sleep, suddenly awakes again with a fright; in this case, or if the patient sleeps with frightful or disturbing dreams, we know that the brain begins to be affected from the free course of the blood being obstructed through the vessels, and that therefore in a short time a frenzy or other symptoms of the worst kind may be expected, as we said before upon another occasion at §. 735. Hence likewise Hippocrates² makes a profound and undisturbed sleep, a sign of a sure crisis or termination of the disease; but, on the contrary, he condemns a disturbed sleep.

A slight *desipieny* or delirium.] When the ideas are not excited agreeable to external causes, but proceed from an internal disposition of the brain, a delirium is then said to attend, as we made evident at §. 700. where we also affirmed, that there may be various degrees of such a delirium. But a slight desipieny is said to attend, when those ideas arising from an internal and morbid disposition of the brain, are not followed with a judgment nor any violent passions of the mind; for, in that case, the ideas raised may be corrected, by reason, and the persuasion of those who are present. But in the mean time, if the same causes continue to act, it is evident enough that there is just reason to fear a fierce and perpetual delirium. Moreover, in the comment to §. 700, it was observed, that sometimes only a slight desipieny appears, tho' the causes disturbing the common sensory are sufficiently violent. Of this kind were those trembling and obscure desipienies, which Hippocrates justly calls *very phrenitic*, as we there observed.

Youthfulness.] The observations of all physicians
D d 2 testify,

² Coac. Prænot. n^o 152. Charter. Tom. VIII. p. 860.

testify, that the flower of a person's age is the most liable to inflammatory diseases; but when people incline to old age, they are less afflicted with these, and oftener disordered rather with such diseases as are chronical and extremely obstinate. But not only people in their youth, but likewise such as are adult, and in the full strength of their age, are frequently subject to the same acute diseases: whence Hippocrates says, *'That from the fourteenth to the forty-second year of age, the body is fruitful of, or prone to, all kinds of diseases'*^a. And in another place^b, enumerating the various diseases of the several stages of life, he observes, that people in their youth are subject to a spitting of blood, consumption, and acute fever; but that those who are past the age of youth, together with other acute inflammatory diseases, are subject to frenzies.

[The use of heating things.] The truth of this too often appears by unhappy instances, when hopeful youths, by too freely using strong wines or fermented spirits, fall into the most acute inflammatory diseases, and perish phrenitic. This appears from some instances adduced from Hippocrates and Galen, in the comment to §. 586, n^o 1. where we treated of the particular causes of fevers. There are almost an infinite number of cases in medical history which confirm the same thing.

[Exposure to the sun.] More especially if people expose themselves for a long time to the rays of the sun in summer, with the head not well covered: for then the integuments of the head and the skull itself may be so much heated, that the blood may begin to coagulate; from whence arises a most malignant frenzy, which is often suddenly fatal. It is indeed true, that people may be always able to avoid such a troublesome degree of heat, by being admonished from the disagreeable sense; yet those who travel through open countries in the summer-heats are sometimes obliged to endure it, and hence frequently whole armies suffer great loss or destruction. Nothing is more dan-

grous.

^a Ab anno decimo quarto usque ad quadragesimum secundum naturam corporis morborum omnis generis ferax fit. *Ibid.* n^o 512. p. 882.

^b Aphor. 29. et 30. sect. iii. Charter. Tom. IX. p. 125, 126.

gerous than for any one to sleep with his head exposed to the rays of the sun. I remember two reapers, very strong and healthy, who thus perished in the space of two hours, when, lying down upon a heap of hay, they slept with their heads naked and exposed to the noon sun: for being awaked by their companions, they stammeringly uttered some incoherent words, and soon after both of them expired. Nor will this seem strange, if we consider, that wood, stones, metals, and the like, exposed to the sun's rays in the summer, may be so much heated, as even to pain the hand of those who touch them. Thus we read, when Manasses the husband of Judith, in the days of harvest, stood over those who were binding up the handfuls, that he died; *venit enim aestus super caput ejus*, "for the heat came " upon his head c."

Overwatchings.] From too long wakefulness the smallest solids are worn away, more especially those of the brain, while all its functions continue to act incessantly without resting; the thinnest part of the blood is dissipated, and the rest consequently thickened, as we have seen at §. 625, no 12. and likewise the humours acquire a greater acrimony from the same cause. But the thickness and acrimony of the blood, being increased together, may produce inflammations of the worst kind, as is evident from what has been said in the history of inflammation. It is likewise evident from what has been delivered at §. 708, that continual watchings in fevers have generally for their cause a slight and incipient inflammation beginning to invade the brain. And therefore watchings are prejudicial, both as a sign of a future frenzy, and as a cause capable of producing the disease; and hence Hippocrates says, That *convulsions or a delirium after watchings, is a bad sign* d.

Anger.] Which is not without reason said to be a short madness. For a person greatly enraged differs in nothing from a person in a raving frenzy: for a great heat is kindled; the pulse becomes full, quick, and

D d 3

strong;

c Judith cap. viii. ver. 2, 3.

d A vigilia convulsio aut delirium malum. *Apher.* 18. sect. vii. *Charter. Tom. IX. p. 300.*

strong; the eyes become fierce, protuberant, and sparkling, and are often suffused with blood; the face appears fierce and terrible, threatening every thing dangerous, whereby the patient frequently endeavours to hurt himself or others.

*Nunc facie supposita ferveſcit ſanguis, et ira
Scintillant oculi: dicisque, facisque, quod ipſe
Non ſani hominis non ſanus juret Oreſtes.*

A. PERSII Sat. iii. in fine.

And, when thy cheeks with flushing fury glow,
The rage of boiling cauldrons is more slow,
When fed with fuel and with flames below. }
With foam upon thy lips, and sparkling eyes,
Thou ſay'ſt, and do'ſt, in ſuch outrageous wiſe;
That mad Oreſtes, if he ſaw the ſhow,
Wou'd ſwear thou wert the madder of the two.

DRYDEN.

Since therefore the functions of the brain are ſo much diſturbed by anger, and the motion of the humours is rendered much quicker than in health, and all the ſigns denote that the blood is ſent very copiouſly and impetuoſly towards the head; it readily appears, that, if an acute fever follows from this violent paſſion of the mind, there will be danger of a frenzy. Such an inſtance of a frenzy ariſing from anger, is given us from Hildanus f.

Grief.] More eſpecially if perſons of a generous and great mind labour under adverſe fortune; and, diſdaining to let their calamities be known, brood over them in ſecret. That melancholy and madneſs may ariſe from grief, will be made evident hereafter in the hiſtory of Melancholy; but madneſs differs from a frenzy only in its not being attended with a fever. If therefore, in ſuch a caſe, a fever ſhall be kindled from any other cauſe, a frenzy almoſt conſtantly follows. Even ſometimes grief a long time ſuppreſſed, ſuddenly breaks out into action, without the acceſſion of any new cauſe. This the celebrated Boerhaave ſaw in a noble widow, who loſing in her huſband all hopes of providing

providing for her numerous family, but being herself alone conscious of her calamity, was over-pressed to the last degree with grief. While seemingly lying ill only with a slight fever, she gave the physician a fierce answer, though she was a woman of a most mild disposition when in health: in two hours afterwards, she became raving; and, tearing her clothes, ran naked about the chamber. Hippocrates has remarked a frenzy to arise from this cause in the wife of Dealcis; *who was taken with a terrible acute fever from grief*^s; and who was continually phrenitic, even from the beginning of the disease to the twenty-first day, when she expired.

Crossness or fierceness of temper, sudden forgetfulness, and a gathering or catching at something supposed to lie upon the bed-clothes.] For all these denote that the common sensory begins to be disturbed; and more especially great attention is required to these signs, as the disorder requires speedy relief before it be any thing confirmed. Therefore, as soon as persons, naturally timorous, begin to speak boldly and threaten; or if they were before good tempered, but now give a fierce answer to the physician, or their friends; or if, asking for drink or any thing else, they soon after forget it, and deny that they called for it; in that case the most efficacious remedies must be instantly applied, to prevent the approaching frenzy. See what has been said concerning these and many more signs of the like nature in the comment to §. 702, where we treated of all these particulars.

Dryness of the whole body, and especially of the brain.] The whole body is soft and moist in health, even in its external surface, and much more internally; as we are taught from wounds penetrating into the cavities of the body, and from the dissection of living animals. Now such an equable moisture of the body is justly esteemed one of the best signs in diseases, as it denotes all the vessels and humours to be pervious. But, on the contrary, when the body appears dry, we know that there is a scarcity of the most thin moisture; and

^s Quam. febris horrida et acuta ex mœroreprehendit. *Epidem.* 3.
Aegrot. 13. *Charter.* Tom. IX. p. 30.

and that the blood, becoming impervious, over-distends the larger vessels, whence the adjacent smaller ones are compressed; as we said more at large in the comment to §. 739. But such a dryness of the brain therefore denotes an imperviousness of the humours thro' the encephalon, which we know from the dryness of the adjacent parts which receive their humours from the same arteries with those of the encephalon. Hence a dryness of the internal parts of the mouth and tongue, with a squeaking voice thence arising, demonstrate this. Hence Hippocrates makes a dry tongue the sign of a frenzy, as we observed at §. 702. But more especially a dryness and dusty appearance of the eyes, indicate the same disorder of the encephalon, because through the eyes are distributed branches from the internal carotids. Hence the reason is evident, why the parts of the fauces being contracted and foul in acute diseases, with a difficulty of shutting the mouth after the patient has been gaping, presage a delirium, which, turning into a frenzy, is pronounced by Hippocrates^b to be very bad; for all these signs denote a dryness of the parts. Hence also the reason is evident, why Hippocrates in another place makes a shrill voice, and foul or dusty eyes, the forerunning signs of a deliriumⁱ.

But all those signs which precede a true frenzy are fairly collected together by Galen, who confesses himself to have taken them from the more ancient physicians: *For sometimes watchings precede, or the sleep is disturbed with fancies or apparitions; while some cry out, and seem to start up: but sometimes an unreasonable forgetfulness attends, so that when they have called for the chamber-pot they yet neglect to make water, or when they have made water they do not at all remember that the chamber-pot was given them; or else they answer more hastily and sharply, especially when the patient was before of a mild disposition. But all these drink little; the respiration is large and slow; and they have the pulse less, and harder or more nervous, than usual: sometimes a pain invades the occiput. But when the patient*

^b Prorrhetic. lib. i. textu 11. Charter. Tom. VIII. p. 707.

ⁱ Ibid. textu 17. p. 712.

tient is just upon the brink of a frenzy, the eyes appear very rough; tears are poured out from the bottom of them, and are afterwards turned into gum or scales; while their vessels appear full of blood, and blood distils from the nose. At the time when the frenzy is advanced, they manifestly answer inconsistently, catch or pull at the bed-clothes, or at straws or other matters which they suppose to lie upon them, &c. To these I might add something concerning the roughness of the tongue and dulness of the hearing; likewise that the patient sometimes lies sorrowful, hardly giving an answer; or when any part affected suffers pain, and they do not perceive it, even though any one violently handles it^k.

But the symptomatic frenzy is preceded almost by every acute disease, with a fever; a pain of the side not pleuritic; a slight disturbance of the mind; an inflammation of the pleura, lungs, or diaphragm, which are violent, or very bad. This kind of frenzy is therefore presaged by a black tongue; suppression of the stools; retention of the urine; white-coloured stools, which are always fatal; a pale, colourless, thin urine; no thirst; fierceness and redness of the countenance; the urine having a black cloud suspended

^k Nam interdum vigilias præcedere; sive etiam somnos manifestis phantasmatibus turbatos, ut et clament nonnulli et exiliant, videre est: interdum vero irrationalis accedit oblivio, ut laborantes aliqui, quum matellam petierint, mejere tamen negligent, aut quum lotium emittunt, matellam ipsam prodere haud quaquam meminerint; vel majori cum tumultu, aut temeritate respondeant, præsertim ubi aliquis antea fuit moderatus. At et hi omnes exiguo utuntur potu, et respiratio magna et rara est, et pulsus minores magisque nervosos habent: nonnunquam occiput dolor infestat. Quum vero jam proxime ad phrenitidem accedunt, oculos habent vehementes squalidos, et ex altero ipsorum acris lacryma effunditur, ac deinde lemas habent, et venas ipsorum sanguine plenas, et sanguis stillat e naribus. Quo tempore neque jam plane ut mentis compotes respondent, floccos avellunt, et festucas carpunt, &c. Quid dicam de lingua aspera, auditu quandoque hebetiori, tum quod interdum mœsti jaceant vix respondentes, vel quum pars quædam dolorificum patiatur affectum, etiam si vehementius aliquis eam tangat, ipsi haud quaquam sentiant. *De Locis Affectis. lib. v. cap. 4. Charter. Tom. VII. p. 439.*

ed in it; with watchings, or an inability to sleep; all which are the signs of an inflammation approaching in the head.

But a symptomatic frenzy arising from the disorder translated from some other part to the brain, may follow almost from every acute disease joined with a fever. But we demonstrated at §. 587. that the most fluid parts of the humours are expressed by the fever, while the rest are incrassated, so that the humours become impervious; hence an obstruction and inflammation may happen in the smallest vessels of the encephalon. Moreover, when the fever by too impetuous a motion tends to death and destruction (see §. 592.) it is evident that the worst inflammations of the viscera are to be feared, and those suddenly fatal. The same thing also happens, when the fever terminates in another disease, by depositing the febrile matter upon various parts of the body. (See §. 593.)

But besides this, practical observations teach us, that inflammatory pains arising in various parts of the body with an acute fever, have sometimes vanished without any good signs; and then there is the most dangerous metastasis or translation of the morbid matter towards the brain, so as to produce a symptomatic frenzy. A notable instance of this is related by Hippocrates¹. In Calvus of Larissa, a great pain suddenly invaded the right thigh; and on the first day of the disorder, an acute ardent fever attended: on the second day, the pain of the thigh indeed abated, but without any good signs; for the fever was increased, and the patient got no sleep, the extremities of the body being cold, &c. On the third day, the pain of the thigh ceased; but the patient was phrenitic and very restless, and perished very suddenly on the fourth day about noon. A like case I saw in a woman, who, after the first appearance of a fever, had a constant and most acute pain in the calf of the left leg: but they had applied rags dipped in spirit of wine to the naked part; and after two hours, the pain disappearing

¹ Epidem. 3. ægrot. 5. Charter. Tom. IX. p. 299.

pearing in the leg, the patient became very delirious, and soon after expired with convulsions on the second day of the disease. It was said before in the comment to §. 593. that sometimes a fever arises in the most healthy people, without any known cause preceding, by which a violent phlegmon is suddenly excited in this or that part of the body, where the inflammatory matter being deposited the fever ceases; but the event of such cases depends chiefly upon the nature of the part affected, rather than the matter deposited by the fever. But then the matter which is once in this manner deposited upon some part, may again remove and be transferred to other parts of the body. Thus we observed, in the comment to §. 724, that an erysipelas may come from within outwards, and the reverse. It will hereafter appear in the history of a Quinsy, that the disease is relieved when the neck and breast look red; and that the most fatal consequences are at hand when that redness returns inward again; as also when a quinsy turns upon the lungs, as Hippocrates has observed. The same thing may happen in a pleurisy, peripneumony, and the like, so that those diseases may seem to be relieved without any good signs, while in the mean time the brain itself becomes affected by a bad translation. But this propensity to a frenzy is observed chiefly in those diseases in which there is a manifest inflammatory disposition; but yet the inflammation does not very obstinately adhere to any one part, but the morbid matter seems more moveable and wandering. To this perhaps may be referred the pain of the side not pleuritic, with the slight disturbances of the mind, which Hippocrates mentions, when he says, *When there are slight and gentle disturbances of the mind; with a pain of the side not pleuritic, such patients become phrenitic*^m. But those slight and gentle disturbances may be very well understood to mean a slight disorder of the mind. Relating to this opinion, is the place given us elsewhere by Hippocrates

tes;

^m Cum lateris dolore, non tamen pleuritico, et turbulentis tenuibus
 lumbus, hi phrenitici fiunt. Coac. Prænot. n^o 411. Charter. Tom. VIII.
 p. 876.

tes; That if a pain of the side, with a bilious spitting, goes off without any manifest reason, such patients are taken with a raving^a. For pains of the side, in order to denominate them pleuritic, ought to be considerably sharp and pricking, so as to obstruct the inspiration, with an almost perpetual cough (see §. 875.); and therefore it is not repugnant for a pain of the side to be joined with a fever without a pleurisy. Hence likewise Hippocrates^o, in enumerating the diseases of the winter-time, includes pleurifies and pains of the sides in the same aphorism. Nor yet are these slight inflammatory pains observed only in the sides, but they likewise appear in other parts of the body, when there is a great propensity to a symptomatic frenzy. Thus Sydenham^p testifies, that he has observed a kind of epidemic fever, in which the blood taken from a vein often resembles that in a pleurisy; and that in the first invasion of this disease, there was a pain in the neck and fauces, but slighter than what is usual in a quinsy: but so great an inclination was there to a frenzy in this fever, that it sometimes spontaneously tended to it; or at least, if the regimen was a little hotter than usual, the patient continually confined to the bed, or the like, a frenzy most certainly invaded. Here it is to be observed, that as in the former case a pain of the side not pleuritic attended; so, in this, a pain of the neck and fauces was perceived, but slighter than in a quinsy.

But it is to be observed, that in a pleurisy, and the like inflammatory diseases, which impede the free respiration, the blood cannot pass but with difficulty through the lungs, whence the right ventricle cannot commodiously evacuate itself, and therefore the venous blood returning from the head cannot freely pass into the right sinus and auricle; but when the arteries continue to send on the blood towards the encephalon, while at the same time the veins cannot return the blood

^a Lateris dolor, ex sputis biliosis, si absque ratione evanuerit, in furorē aguntur. *Prorrheticorum, lib. i. Charter. Tom. VIII. p. 767. & Coac. Prenot. n^o 418. ibid. p. 876.*

^o Aphor. 23. sect. iii. *Charter. Tom. IX. p. 118.*

^p In *Schedula monitor. de novæ febris ingressu, p. 651.*

blood, all the sanguiferous vessels will continue greatly distended by it, so as to compress the other small vessels, and disturb the functions of the brain. This is another kind of symptomatic frenzy, which is indeed very bad, and commonly fatal in a short time, as it may be produced from the inflammatory diseases of other parts: but in such a case a frenzy arises without a translocation of the morbid matter, since the former disease continues, as is evident enough. But an inflammation of the diaphragm is the worst of all those acute diseases which usually produce a symptomatic frenzy; as will appear hereafter, when we come to treat of a Paraphrenitis under its proper head.

It now remains for us to consider those signs which denote other diseases inclining to a symptomatic frenzy.

Black tongue.] For this denotes either a deficiency of the thin lymph of the blood, or that the larger vessels distended with the impervious blood compress the adjacent smaller ones, whence the exhaling arterial ducts placed upon the surface of the tongue become dry and gangrenous. Hence a black tongue, especially if it is dry at the same time, presages the very worst condition of the humours; concerning which, see what has been said in the comment to §. 739. Hence therefore Hippocrates ranks a dry and rough tongue among the signs of a frenzy, as we observed before at §. 702.

A constipation of the bowels with white stools.] It is well known, that by urine and stool are evacuated from the body such parts as would be injurious if any longer retained; as they consist of the feculencies separated from the healthy humours, changed and rendered acrid by the circulation itself; or else the remaining faeces accumulated from the ingested aliments, after they have undergone the action of the stomach and intestines, and are likewise equally necessary to be evacuated. But in acute diseases, when the oily and saline parts of the blood become more acrid from the increased velocity of the circulation (see §. 100, and 689.), and the bile especially rendered more acrid in-

clines to putrefaction, there is still a greater necessity for these excretions to be continued. When therefore the stools are suppressed, or the urine retained, those acrid parts will continue in the body which ought to be expelled. The same thing will likewise happen, if the discharges by urine or stool do not contain those acrid or corrupt parts which ought to be expelled by those outlets; as happens when the intestinal fæces are white, and the urine pale, thin, or colourless. For we then know that such acrid parts are retained in the body, which ought to be expelled by these ways; and that they either continue mixed with the blood, or else, being separated from thence, are collected in the bladder or intestines, being afterwards absorbed by the bibulous veins of these parts, and mixed with the blood. But when such acrid parts are moved with the blood, they offer the greatest injury to the most tender vessels; and therefore there almost constantly follows an injury in the functions of the brain, as appears in those who die of a perfect ischuria or suppression of urine. But there is hardly ever a considerable degeneration of the humours observed, but there is likewise a disturbance in the functions of the encephalon at the same time. When, in pale virgins, crude humours flow through the vessels instead of good blood, we very frequently observe giddiness, tinkling in the ears, sluggishness, or aversion to exercise, palpitations of the heart, fainting-fits, &c. The like appearances are also observed in the scurvy, gout, and many other diseases drove inward. Even the fabric of the encephalon is so easily irritable, that the blood of another healthy animal received into the human veins cannot safely flow through the vessels of the encephalon: for Dionis^a tell us, that when a transfusion of the blood was rashly attempted from a calf into the human veins, the unfortunate people, upon whom the experiment was made, soon after turned mad, and expired raving. It is therefore evident, that, when such things are retained as ought to be expelled, or when the excretions do not contain those

parts.

^a Operat. de Chirurg. demonstr. 8. p. 498.

parts which ought to be thrown out from the body, there is just reason to fear a frenzy in acute diseases.

Hence a suppression of the stools is condemned in fevers by Hippocrates^r; who in another place^s reckons a constipation of the bowels among the signs of a future opisthotonus. Galen^t indeed, in his commentaries to this place, remarks, that a suppression of the stools is not properly a sign of affections in the brain; but in the mean time he confesses, that disorders of the brain are increased and rendered worse when the bowels are constipated. This is also confirmed by Hippocrates in his Coan Prognostics, where he says, *That those who sweat and have a pain in the head, with a suppression of the stools, in fevers, become convulsed*^u.

But if the stools are white, we know that there is a retention of the bile, which gives them their usual and healthy colour; and therefore that the bile, rendered more acrid by the fever, is dissolved, putrefied, and mixed with the blood; whence again the same disorders are to be expected. Hence Hippocrates^w condemns white stools, more especially in phrenetic^x patients; in whose works many more passages are to be found of the like nature^y.

But when the passage of the bile into the intestines is impeded by an obstruction either of the common or of the cystic duct, the stools then often look white, and the disease is indeed difficult; yet in this case it is not always a fatal sign, since the disease is curable upon the removal of the obstruction, as we shall declare hereafter when we come to treat of the several kinds of Jaundice and Inflammation of the Liver. But this sign affords a much worse presage, if the stools appear white without the signs of a jaundice.

[The urine retained, pale, thin, and colourless.] Since naturally the urine is oftener discharged than the in-

E e 2

testinal

^r De Morbis, lib. i. cap. 4. Charter. Tom. VII. p. 535.

^s Prorrhetic. lib. i. Charter. Tom. VIII. p. 756.

^t Ibid.

^u Qui in febris exsudent, capite dolentes, alvo suppressa, convulsi fiunt. N° 155. Ibid. p. 860.

^w In Prognostic. Charter. Tom. VIII. p. 629.

^x Prorrhetic.

lib. i. textu 13. ibid. p. 708.

^y Ibid. p. 736. et in Coacis Prænot. n° 602, 606, 615. Ibid. p. 888, 889.

testinal fæces, therefore a long retention of the urine is much more dangerous. But this retention is above all the most dangerous in acute diseases, because the saline and oily parts of the blood, being rendered more acrid by the increased velocity of the circulation, ought to be that way evacuated; and if this evacuation does not succeed, it is evident that the worst consequences are to be feared. Hence Hippocrates ^z tells us, that a suppression of urine in acute diseases is of the most fatal consequence; and in another place ^a he observes, that a suppression of the urine, among other symptoms, is attended with a pain in the head, and sometimes convulsions. But since the bile returning into the blood is usually washed out in a great measure by the urine, which therefore appears of a higher colour, as in a jaundice and other bilious diseases; therefore, if in such a case the urine is suppressed, there will be the greatest danger that the bile mixed with the blood may every moment acquire a greater acrimony from the increased circulation. Hence the reason is evident why Hippocrates says, *That a suppression of the urine in bilious fevers, soon kills the patient* ^b.

But when the urine is not intercepted, but discharged pale, thin, and colourless, the same disorders are to be expected, because in the like manner those parts are retained in the body which ought to have been expelled by the urine. For it was proved before in the comment to §. 673, that a more intense colour of the urine followed from a greater attrition of the fluid parts against each other and against the sides of the vessels, and that from thence we may be able to discover the internal heat: but even in healthy people, after violent exercise of body, the urine appears more intensely coloured. The reason is therefore evident, why, in acute diseases, a pale and colourless urine is of such bad import. Hence it is by Hippocrates ^c ranked among the signs of a frenzy being at hand. See also what has been said of this kind of urine, in the comment to §. 712.

The

^z Prorrh. lib. i. Charter. Tom. VIII. p. 734. ^a Ibid. p. 786.

^b In biliosis urinæ interceptio brevi occidit. *Coac. Prænot.* n^o 592. *ibid.* p. 887. ^c Prorrh. lib. i. textu 4. *ibid.* p. 699. et *Coac. Prænot.* n^o 582. *ibid.* p. 886.

The urine having a black cloud suspended in it.] Also this kind of urine is by Hippocrates esteemed a sign of a future frenzy in the places before cited, and generally black clouds swimming in the urine are condemned by him^d: For it denotes a beginning putrefaction of the humours; as we said before upon another occasion, in the comment to §. 741. where more may be seen upon this subject.

No thirst.] Namely, when the patient is not thirsty although the causes of thirst in the body are at that time violent. This sign therefore denotes, that the common sensory is now disturbed, and is no longer affected by those things which before excited thirst. See what has been said before at §. 637; as also what has been said in the comment to §. 739, concerning inextinguishable Thirst suddenly abolished in an Ardent Fever. For where the thirst is diminished, while at the same time the tongue appears more moist, and other good signs denote the disease to be diminished, this is one of the best signs.

Fierceness, redness of the face, watching, are the signs of an inflammation approaching in the head.] For all these denote the cause of a frenzy to be now present in the head, or that it will soon follow; but of each of these signs we treated before in the former part of this aphorism.

§. 773. **W**HEN either of these frenzies (§. 772.) is present, it is attended with the following symptoms: 1. A depravation of the sensible ideas, and of the internal senses, with the reasoning and passions of the mind. 2. The patients become more fierce, ungovernable, restless, and are often disturbed in their sleep. 3. The pulse appears hard, the respiration slow and large. 4. The face is generally very red, wild, and terrible of aspect, the eyes being fierce and protuberant, and a little blood dripping from the nose.

Whether or not the brain being primarily affected occasions the frenzy, or whether the same disorder is translated thither from some other part at the time when the morbid cause affects the encephalon; in either case there are certain changes observable, especially in the functions which we know depend upon the brain; and from these appearances, called *symptoms*, the diagnosis of this disease present is derived. But such are the following.

1. It is evident from what we said upon another occasion in the comment to §. 700, where we treated of a Febrile Delirium, that ideas might be excited in us from an internal disposition of the brain, which ideas are not agreeable to external causes acting upon the organs of sense; and that the ideas thus formed are different according to the more or less violent change of the common sensory; so as to be either slight or weak, and easily capable of being directed by the reason; or, on the contrary, so powerfully to affect the delirious patient, that he firmly persuades himself such causes are existing without as formerly produced the like ideas by acting upon the organs of sense; and then such ideas, arising from an internal disposition of the brain, are often accompanied with the judgement, passions of the mind, and even violent motions of the body: and from hence may be derived and explained the various degrees of a febrile delirium. But since it was proved at §. 701, that a morbid affection of the medullary part of the brain attends in a delirium; and that this may proceed from the influx, transflux, and efflux of the humours through the encephalon being impeded or obstructed from any cause, from a more violent motion of the humours, &c.; it is sufficiently evident, that what has been there said likewise holds true with respect to a frenzy; in both kinds of which, whether true or symptomatic, the motion of the humours through the vessels of the encephalon is so much disturbed from the inflammation of the meninges, and sometimes even of the cortical substance of the brain itself, urged with an acute continual fever. Every thing therefore which has been
said

said concerning the depravity of the ideas, the judgement thence following, the injury of the imagination, &c. in a febrile delirium, does likewise belong to this place.

But since the slightest change in that corporeal organ, upon which our humanity depends, is sufficient to excite ideas without any external cause, either such as are altogether new ones, or like those which have been before excited by external causes acting upon the organs of sense; it is evident enough, how much all these must be disturbed, when an inflammation is seated in the internal parts of the head. Hence this disorder has sometimes appeared so wonderful to ignorant people, that they believed it ought to be ascribed rather to diabolical power, than to natural causes. Thus Tournefort^c observes, that in Greece, as soon as the patient is delirious, they no longer consult physicians for relief, but fatigue the patient day and night with exorcisms; but if the patient happens to perish of this disease, they prohibit the body from being buried with the usual ceremonies of the the country, namely, because the patients were not sufficiently set at liberty in their mind from the devil. But although, where the common sensory is disturbed in a frenzy, there may be innumerable and very different changes raised in the thoughts; yet it most frequently happens, that the patient's thoughts are most incessantly employed upon the arts or workmanship to which he has been most accustomed; or if any thing happened to him that has made a violent impression on the mind a little before the invasion of the disease, the remembrance of that thing is perpetually renewed. Continual observations in practice teach this; and the disorder which afflicted the whole city of the Abderites, affords a remarkable proof of the same thing. For Lucian^f relates, that Archelaus, a celebrated tragedian, having acted the fable of Andromeda before the Abderites in very hot weather in the midst of summer, many returned out of the theatre with a fever upon them;

^c Voyage-du Levant, Lettre iv. p. 66.

^f Tom. I. in Capit. *Quomodo historia sit conscribenda*, p. 657.

them; and that afterwards even the whole city was invaded with a continual fever, which immediately became violent, even on the first day. But about the seventh day the fever went off, in some by a plentiful hæmorrhage from the nose, and in others by a copious sweat. But these patients had a ridiculous kind of disturbance in their minds; for every one was acting the tragedy, repeating the verses, and especially singing in a mournful tone *Andromeda of Euripides*. But it is evident, from the preceding causes and history of this disease, that the Abderites laboured under a true frenzy; and that the remembrance of the tragedy, which they had heard with so much delight, being renewed by the disease, continued the whole time of it, and went off with it. For Lucian remarks, that the fever went off on the seventh day, and that the whole city was full of seven-day tragedies.

2. That a perpetual delirium attends a frenzy, was said before at §. 771: but it was there likewise observed, that this, though frequently, is yet not always a fierce or raving delirium; for fierceness is said to attend, when the delirious patient attempts to injure himself or others. But the ideas arising from the morbid change in the common sensory, are either attended with this fierceness, or not, according to the various affections of the mind. Thus the delirium of the Abderites, was rather a ridiculous than a fierce one; and in the fatal frenzy, when the patient often catches at the nap of the bed-clothes, or at straws from the sides of the curtains or walls, they are tacitly delirious without any disturbance, as we said before in the history of a Febrile Delirium. But in the mean time, great caution is necessary to be used, even in these cases, as more tacit and still frenzies suddenly change into extravagant ravings. Thus I remember a gardener in the third day of a true frenzy, who was then only tacitly delirious and caught at the bed-clothes; but in one moment he jumped out of the bed, and ran swiftly up stairs to the highest part of the house, from whence he was going to throw himself out of the window, if his wife had not immediately laid hold of him; but while she

she was struggling with him, and calling out to others for assistance, the patient was convulsed and died suddenly.

But since pervigilium or watching has at first for its cause only a slight inflammation of the brain (see §. 708.) and, that cause being increased, it often changes into a coma; the reason is therefore very evident, why restlessness and a disturbance in the sleep so frequently attend a frenzy.

3. Under this number are enumerated the alterations appearing in the vital functions, in this disease. But a hard pulse is observed commonly to attend almost in all inflammatory diseases joined with an acute continual fever. It denotes that the blood is very dense and compact, and that the capillary extremities of the arteries are obstructed with an inflammatory tenacity g. Hence Galen^h observes, that the pulse of pleuritic patients is hard and nervous. And at the same time he likewise observes, that there is great variety to be perceived in the pulse of pleuritic patients; for sometimes they are tremulous, surgy, knotty or unequal. But this last seems to take place chiefly when the disease is already at its full height, and more especially if the cerebellum itself begins to be affected; for then we know that the vital functions must be disturbed.

For as the cerebellum is supplied with its humours from the same vessels with those of the brain, and is covered with the same membranes, it is hardly possible for a violent inflammation to be seated long within the head, without affecting the cerebellum likewise: hence Galen, in the place last cited, observes, that the pulse is very rarely large in phrenitic patients, but most frequently small. But also from the same cause there seems to be a change observable in the respiration of phrenitic patients: for they continue a long time before they draw in the air, which is then powerfully inspired and expired; after which there is a long interval again of rest, before they make or repeat the next respiration.

g H. Boerh. Instit. Medic. §. 962.
ad Tyrones, cap. 12. Charter. Tom. VIII. p. 11.

h In libello de Pulsibus,

spiration. This is that kind of respiration which Hippocrates i terms *great*, and made with a long interval of time, which he observes to portend a delirium; which kind of respiration he also observes to have attended in Philiscus k, who was delirious with an acute continual fever, and perished on the sixth day; as also in the wife of Dealces, who died phrenitic l.

4. For all these signs denote that the blood tends with a greater quantity and impetus towards the head. Moreover, when an inflammation is seated in the interior parts of the head, the free course of the blood through the vessels is impeded; and therefore the blood driven through the carotids will be sent more copiously through their external than internal branches, whence the blood-vessels of the face being distended, will make it appear more turgid and red, and this the more in proportion as the circulation of the humours through the vessels of the encephalon becomes more difficult. This appears most evidently in apoplectic patients, who have the face red and turgid even until death, and this too in cases where the disease has its origin from a sluggish and cold cause. Hence the reason is evident why Hippocrates m condemns that comely colour of the face, and the fierce countenance, in patients, more especially in acute diseases n. A person taken with a violent fit of anger has the same sort of countenance (see the comment to §. 104); and the patients thus affected are often soon after taken with the most fierce ravings. But the slight dripping of blood from the nose likewise denotes, that the quantity and impetus of the blood so much strains the vessels, that they begin to break and let out their contained blood; but this without a due effect, generally because the imperviousness of the blood stops up the vessels by instantly concreting. But a present frenzy is best removed by plentiful bleeding, by which also a future frenzy may be frequently prevented in acute diseases; as we

i In Prognost. textu 24. Charter. Tom. VIII. p. 607.

k Epidem. 1. ægrot. 1. Charter. Tom. IX. p. 99.

l Epidem. 3. ægrot. 15. Charter. Tom. IX. p. 302.

m Prorrhetic. lib. i. Charter. Tom. VIII. p. 731.

n Coac. Prænot. n° 214. ibid. p. 864.

we shall shew hereafter at §. 779. See also what has been said upon this subject in the comment to §. 741.

§. 774. **T**HE prognosis is as follows:
A true frenzy kills on the third, fourth, and seventh day; but seldom exceeds the last.

That this disorder is extremely dangerous, no one doubts; but it is often fatal even on a sudden, unless it is instantly relieved by the most efficacious remedies. But diseases tend to death sooner or later, according to their different degree of violence, and nature of the part affected. But since a true frenzy, which supposes the brain to be primarily affected with an acute continual fever (see §. 771.), is seated in a part of the body extremely tender, and very easily destroyed, it is sufficiently evident why it seldom holds out longer than the seventh day. But in a symptomatic frenzy the disease is often protracted to a greater length, because the disorder lies always in some other part of the body before it is transferred to the brain. The observations of Hippocrates confirm this prognosis. Philiscus ^o, who was taken with a delirium on the third day of an acute fever, had afterwards a slight dripping of blood from the nose, with a large and rare respiration (which is observed to be one sign of a frenzy), and on the sixth day of the disease he expired. Philistes ^p, who had been a long time afflicted with the head-ach, being seized with a continual fever from drinking, after an increase of the pain in his head, on the second day about noon he became violently delirious or phrenitic; and being convulsed on the fourth day, he expired on the fifth in the morning. Thus also another phrenitic woman ^q, he observes, perished on the seventh day; and another patient ^r, who became frenitic on the first day of the disease, expired on the fourth. Galen ^s, in his commentaries to this text, confirms the prognosis before given, namely, that all phrenitic patients die within

^o Epidem. 1. ægrot. 1. Charter. Tom. IX. p. 99.

ægrot. 4. ibid. p. 232.

^q Ibid. ægrot. 11. p. 250.

ægrot. 4. post tempestatem, p. 298.

^s Ibidem.

^p Epidem. 3.

^r Ibid.

within seven days from the first of the diseases and that very few outlast that time. At the same time he seems greatly to wonder, that people who have hitherto enjoyed a good state of health, should be so suddenly invaded, and carried off by this disease: but he was of opinion, that in this case, *A vicious humour was collected in the body very much like a fatal poison, which by degrees acted upon the adjacent parts; and that when this had a seasonable time of acting, and the humour itself was become extremely malignant, this fatal symptom then suddenly appeared*^t. But as we are at present acquainted with the very tender vascular fabric of the encephalon, the reason readily appears why this disorder so suddenly becomes fatal, even though no malignant nor deleterious humour is lodged in the body.

But in a symptomatic frenzy sometimes the disease is protracted to a great length. For thus Apollonius u lying ill of a fever, with a tumour of the right hypochondrium, becoming afterwards phrenitic, he expired on the thirty-fourth day. Thus also the woman who had a difficult delivery of twins, being not well purged, died phrenitic on the seventeenth day^u. And the youth who lay ill of a fever from drinking and excessive venery, expired phrenitic on the twenty-fourth day^w. But from the descriptions of the diseases of these patients, it appears that other parts of the body were first affected, and that the disorder was transferred from thence to the brain; or at least that by the fever, acting for several days before, the most fluid parts of the blood were dissipated, and the rest so much thickened (see §. 587.) that it became impervious so as to stagnate in the smallest vessels of the encephalon.

But that even a symptomatic frenzy is sometimes suddenly fatal, we are taught from the history of Calvus^x of Larissa; who being suddenly taken with a pain in his right thigh, joined with an acute ardent fever,

on

^t Vitiosus in corpore humor coacervatus fuerit, veneno lethali assimilis, in corporibus vicinis paulatim aliquid agens; quæ quando vitio jam aliquo modo opportuna erant, humorque ipse evaserat malignissimus, lethale subito apparuit symptoma. *Ibid. ægrot. 13. p. 307.*

^u *Ibid. ægrot. 14. p. 308.*

^w *Ibid. ægrot. 16. p. 310.*

^x *Ibid. ægrot. 5, p. 298.*

on the third day the pain of his thigh ceased, but then he became delirious or phrenitic, was very restless, and suddenly expired on the fourth day about noon.

And then if the frenzy is severe, it often turns into madness.

A continual delirium without a fever is by every one called *madness*, as Galen^y assures us; and he observes that a frenzy is distinguished from madness only by the fever which attends it^z. If therefore the fever ceases in phrenitic patients, they may be said to be mad. It was said before upon another occasion in the comment to §. 593, that fevers terminate in other diseases when the febrile matter is deposited in some part of the body; and that these diseases produced may be very different, according to the variety of the part which the matter occupies. It is likewise there remarked, that sometimes in the most healthy people a fever arises; and that, soon after, the matter being deposited upon some part, excites a phlegmon or erysipelas, the fever immediately ceasing when this deposition is made. This is very frequently observed in quinsies, when, after a slight fever has continued a day or two, the fauces swell, become painful and inflamed, the fever then ceasing entirely. But, as we observed under the aphorism last cited, the whole success of the cure in such diseases depends chiefly upon the part affected. If therefore such an inflammation arises in the meninges of the brain, the fever ceasing when the deposition is made upon these parts, such patients may be delirious in the worst degree; but having no fever, they will be therefore maniacal or mad. I well remember myself to have seen cases of this nature, where, in a fever not very violent, the patients have begun to be slightly delirious; and soon after, the fever entirely ceasing, they have continued raving in the highest degree for several days, and even weeks, so that they have been obliged to be restrained from injuring themselves

^y Comment. in lib. i. Prorrhetic. Charter. Tom. VIII. p. 693.

^z Comment. 3. in lib. iii. Epidemic. Charter. Tom. IX. p. 276.

or others by ligatures. But what has been remarked by that accurate observer, Sydenham, fairly confirms what is here advanced. For in describing a new kind of fever, among other things he observes ^a, that blood taken from a vein in these patients resembled that which is drawn in a pleurisy; and that sometimes the neck and fauces were painful, but much less than in a quinsey; but that sometimes there succeeded cutaneous eruptions, not much differing from the measles, unless in their appearing more red, and in their going away without a desquamation of the cuticle. He particularly observes, that this disease was greatly inclined to a frenzy, and to affect the head: "But when," says he, "the fever has seized the head, and the frenzy prevailed, the signs of the former vanish, only the pulse beats sometimes quick, and sometimes slow." But the same thing likewise happened when a coma supervened upon this fever; for then, besides the whiteness of the tongue, there was no sign of any fever, but the patient seemed perfectly to enjoy an intermission ^b. It is therefore evident from all that has been said, that a frenzy sometimes turns into madness; but yet that in diseases of the like kind, when the violence of the fever ceases, and only a slight inflammation or gentle erysipelas invades the interior parts of the head, the patient most frequently escapes, and afterwards perfectly recovers; provided that, after general evacuations have been made by bleeding and purging, the whole affair is committed to time and nature, as Sydenham ^c well observes. The slight cutaneous inflammation observed in the same fever, is probably like that which invaded the head in the same disease, as it went away spontaneously without any desquamation.

But sometimes a severe frenzy is followed with a much worse madness, which often continues incurable as long as the patient lives. From what has been said it is evident, and will be further demonstrated hereafter at §. 776, that the proximate cause of a frenzy is an inflammation of the meninges of the brain, and that

^a In *Schedula Monitoria de novæ febris ingressu* p. 651, 652.

^b *Ibid.* p. 660. ^c *Ibidem.*

that even sometimes the cortical substance itself of this viscus has been found with manifest signs of inflammation upon it: but from the infarction of the vessels, and distension of them with impervious blood, the adjacent smaller vessels are compressed, while the humours are urged more swiftly through those which yet remain pervious; whence the equable and gentle motion of the humours through the vessels of the encephalon is disturbed, though upon that depends the exercise of the external and internal senses, with the voluntary motions. Now, when a violent fever continues to urge the humours into these obstructed parts, the very tender fabric of this viscus is soon destroyed, and such patients die in a few days. But if by art or spontaneously the fever is diminished, or entirely ceases, yet frequently this inflamed part does not therefore immediately return to its healthy state, unless those impervious humours are gradually dissolved which were impacted into the weak and tender vessels of the encephalon. But the very tender vessels of the encephalon having once received the grosser humours by an error of place (see §. 118.) can very difficultly resolve such an obstruction, as the arteries of the brain are destitute of strong elastic coats; for want of which they cannot repel back the obstructing particles into the larger trunks, even though the impulse of the humour urging behind is little or nothing. There is therefore danger lest this impervious fluid, by the dissipation of its most subtle parts, should concrete together with the containing vessels, and by that means totally destroy or deprave the functions which depend upon the motion of a fluid through these vessels. Add to this likewise, that from the distension of the obstructed vessels the adjacent smaller ones are compressed, and, their contained fluid being forced out, their sides come into contact, and concrete together; whence again these maladies are increased. Physicians of considerable practice have too frequent occasion to lament from these causes an incurable loss of the sight and hearing, after acute inflammatory diseases of the head; and even the worst consequences of the like

nature are too frequently observed, when inflammatory diseases of the other viscera have been unhappily treated, or imperfectly cured. Whether may not an incurable asthma in this manner continue during the rest of life, after a severe inflammation of the lungs? After a violent and stubborn inflammation of the liver a jaundice may thus follow, often returning at times as long as the patient lives, &c. The reason is therefore evident, why after a severe frenzy incurable madness often follows, or sometimes, the extravagant raving going off, the disease turns into the most incurable foolishness. There are many such unhappy instances which occur in our public madhouses; and I have, above all, most frequently observed, that a frenzy from a retention of the lochia in lying-in women has degenerated into a perpetual madness and foolishness.

If this phrenitic madness increases a little, it becomes exorbitant or ungovernable.

It is an admonition of Hippocrates, of the greatest moment, that the physician, being aware of this disorder, should immediately have recourse to the most efficacious remedies, and at the same time to be careful lest such patients should injure themselves or others: for thus he expresses himself, *When desipencies or deliria degenerate by degrees into fierceness, they are raving or outrageous, and portend convulsions*^d. For Foësius seems to have very well translated *επ' ολιγον*, *sensim*, or *by degrees*: Whereas others translate it, *in a little time*; more especially because Galen seems to favour this opinion in his comment upon a like text in another place of Hippocrates, where he says, *This will be therefore the sense of the present sentence: "When you shall see any one desipient or delirious with a fierceness, and if it soon after goes off, you may know that the patient's mind was not injured by reason of the fever, but because a phrenitic affection is latently nourished, which afterwards increasing will seem to*
" you

^d Quæ sensim feroces fiunt desipientiæ, serinæ sunt: sed et convulsiones prænunciant. Coac. Prænot. n° 87. Charter. Tom. VIII. p. 857. et n° 156. ibid. p. 860. et n° 247. p. 865.

“you like a raving^e.” But if we consider the appearances observable in such diseases, the translation of Foësius will appear much more probable: for frequently the delirium is increased slowly and by degrees, till it ends in the highest raving. For first, the patients appear more than usually cross; afterwards, they give fierce and threatening answers; then they reject what is brought to them, though they strongly desired it before: and thus, by degrees, as the disorder advances, they at last fall upon those who are present, endeavouring to hurt them by kicking, biting, or the like. And such Galen^f would have called (θρηωρεῖς παραφροσυνάς) *raving deliria*. For there is no room to doubt but the patient is ravingly delirious, though he is soon after quiet; but then there is just reason for those who are ignorant of the matter to be careful both of themselves and of the patient, lest he should soon after fall into the like raving. But Hippocrates seems to have cautioned physicians not to believe the cause of the disease to be slight, when the delirium slowly ascends into a raving; for the patient may not immediately and at once be put into a rage, when in the mean time a severe raving is to be shortly feared. Even the text itself of Hippocrates seems evidently enough to favour this sense; for these are his words: αἱ ἐπ' ὀλίγον θρασυαὶ παραχρῆσιες θρηωδεῖς εἰσιν, ἢ μόνον εἰαν ἐπ' ὀλίγον χρόνον γινώνται. For if we take ἐπ' ὀλίγον to mean a *short time*, this text will have no distinct meaning, since in the end of it we read ἐπ' ὀλίγον χρόνον: But the sense of this text appears plain enough, if we retain the following version of it: *Quæ sensim fiunt feroces desipientiæ, ferinæ sunt, non tantum si paucò tempore fiant (feroces scilicet)*; “Those desipienties or deliria which gradually or slowly become fierce, render the patient raving or outrageous, as well as those which become so in a short time.”

But most of the signs whereby we may foreknow a

F. f 3. future

^e Talis igitur vis hujus sermonis erit: Quum videris quempiam cum ferocitate delipientem, et si paulo post sedetur, cognosce, mentem ejus non febris ratione læsam esse, sed quia phrenitica subalitur affectio, quæ postea adaucta tibi ferina videbitur. *Prorrheticor lib. i. textu 25. Charter. Tom. VIII. p. 715, 716.*

f. Ibidem.

future delirium, or distinguish an increase of that which is present, may be found collected from Hippocrates in the comment to §. 702.

It often ends in a lethargy, coma, or catalepsy.

Namely, when, the inflammatory tumour of the vessels being increased, the very tender fibres of the encephalon are compressed, and all the influx of the spirits into the nerves serving to the senses and voluntary motions, is for the most part obstructed, if not wholly intercepted. Even that an apoplexy itself may be thus produced, we shall hereafter demonstrate in the history of that disease, at §. 1010. N^o I. 2. But a *Lethargy* (ληθην αεργία) as if one was to say an *idle forgetfulness*, takes away almost entirely all sense and motion, and is joined with an insuperable necessity of sleeping; and for the most part the disease, which physicians usually describe under this name, is derived, as to its cause, from a moist phlegmatic disposition of the brain, and a cold cacochymy of the blood; whence Hippocrates describes this disease as follows: *Lethargic patients are sleepy, have a trembling of the hands, are without their healthy colour, appear tumid or swelled, the pulses are slow, and the parts under the eyes appear elevated or distended,*⁸ &c. It is therefore evident, that a lethargy is quite of a different nature from an inflammatory frenzy; but yet if the like sleepiness follows a frenzy, especially with a considerable diminution of the violence of the fever, without the signs of its going off, it is usual to call this symptom by the name of a lethargy. Galen, in treating of the difference of pulses in diseases, describes such a disorder, which he says wants a proper name, and concerning which he doubts whether it ought to be called from coming betwixt a frenzy and a lethargy, or from being made up both of a frenzy and lethargy together. In which disorder *the patients have generally their eyes shut, are sleepy, and snore. Others again have* *their*

⁸ Lethargici, manibus tremuli, somnolenti, decolores, tumidi, pulsus tardi sunt, et partes sub oculis elevatas habent, &c. Coac. Prenot. n^o 145. Echarter. Tom. VIII. p. 859.

*their eyes fixed, and for a long time without motion, as if they were invaded with a catalepsy. But if you ask them any thing, and oblige them to talk, it is with great difficulty, and they are a long time in giving an answer. And generally they speak foolishly, not giving proper answers, but trifling in a disagreeable manner^b. In is sufficiently apparent, that these circumstances agree very well with what has been said before; more especially as Galen subjoins, that in these patients *the pulses are quick and frequent, as in those who are phrenitic, only smaller; and likewise they are less strong**.*

But that a *Coma* frequently attends or follows inflammatory diseases of the head, is evident from what has been said at §. 704. But that the surprising disorder called a *Catoche*, or *Catalepsy*, in which the patients are suddenly taken, without motion and sense, keeping in the same posture of body they were in when the disease first invaded (see §. 1036); that this should likewise follow after a frenzy, will not appear wonderful, when it is considered, that the dissection of bodies deceased of this disease, has demonstrated the arteries and veins to be very turgid with thick blood violently impacted into the vessels, (see §. 1041). In the text lately cited from Galen, there is mention made of a catalepsy; and that a delirium is sometimes joined with a catalepsy, we read in Hippocrates: *Those who, having a pain in the head, are delirious with a catoche, a suppression of the stools, a fierceness of the eyes, and a florid colour of the face, such are invaded with an opisthotonus, or convulsions backward*ⁱ.

But that these disorders are of the worst presage in a frenzy, is even well known to those who attend the sick,

^b *Ægri connivent ut plurimum oculis, somnolenti sunt, atque sterunt. Rursus oculis fixis ac inconniventibus diutissime, ut catoche laborantes, intuentur. Et si quid roges, atque ad colloquium compellas, difficiles sunt ad respondendum et tardi. Plerumque etiam stulte loquuntur, nec recte respondent, ac temere nugantur. De Pulsibus, ad Tyrones, cap. 12. Charter. Tom. VIII. p. 11.*

* *Pulsus celeres sunt et crebri, perinde ut phreniticorum, minus tamen: et roboris item minus ac illi obtinent. Ibid.*

ⁱ *Capite dolentes, cum catoche delirantes, intercepta alvo, oculo ferocientes, facie florida, opisthotono corripuntur. Prorrheticor. lib. i. Charter. Tom. VIII. p. 756.*

sick, they being able to foresee certain death, when the patient, lately raving, suddenly becomes quiet and sleepy.

A vomiting of eruginous matter, as an effect of the inflammation of the brain; a frequent and indecent spitting upon the by-standers; a trembling; the fæces and urine intercepted, or white; a crude urine; convulsions; catching at things that seem to fly before their eyes; a dryness or dustiness of the eyes; a gnashing of the teeth; want of thirst, the common forerunner of convulsions; a perpetual changing of the symptoms; the subsiding of any ulcer or wound before swelled; are all frequent presages of the greatest danger, and of death.

In this paragraph are enumerated those signs which point out the greatest danger, or death, in a frenzy. Among these is justly ranked, Eruginous vomiting. In the comment to §. 267, where we treated of the signs whereby it might be known whether wounds of the head injure or compress the brain itself, it was said to be a very suspicious sign if the patient thus affected had a bilious vomiting: and in the same place it was remarked, that the brain being disturbed by an unusual motion in sailing upon the sea, in people who were before perfectly in health, there followed a vomiting of eruginous bile; and, on the other hand, that when from any cause such a collection of bilious humours is lodged about the præcordia, all the functions of the brain are wonderfully disturbed. But concerning this wonderful consent betwixt the brain and præcordia, see what has been said before in the comment to §. 701. When therefore this vomiting attends in phrenitic patients, we know that the inflammatory cause disturbs the brain itself, and that therefore the worst consequences may be expected. But we can easily distinguish that this vomiting proceeds from an inflammation of the brain, and not from acrid bilious humours

humours fluctuating in the first passages, because of the absence of those signs which were enumerated in the first number of §. 642, where we treated of a Nausea arising from such bilious humours. Hence the reason is also evident, why Hippocrates (see the comment to §. 267.) says, “That eruginous vomitings in pains of the head, with deafness and perpetual watchings, soon make the patient violently delirious.” But the histories of the patients given us by Hippocrates sufficiently prove the fatal events of these kinds of vomitings. For thus Philistes^k vomited much eruginous matter on the first day of the disease; on the second day, he was violently phrenitic; on the fourth day, he was convulsed; and on the fifth, he expired. But another phrenitic patient^l, who vomited much eruginous thin matter on the first day of the disease, and was greatly delirious, had on the second day palpitations or tremblings throughout the whole body, attended with convulsions the following night, and on the fourth day he expired.

Frequent and indecent spitting upon the bystanders.] Whether this spitting in itself is a sign of a frenzy in diseases, may indeed seem to be a matter of doubt. But as the free circulation of the humours through the internal parts of the head is impeded, the blood must be urged with a greater force upon those parts which are supplied with branches from the external carotids; whence that redness and fierceness of the face, with proturberant eyes, &c. of which we treated in the fourth number of the preceding aphorism: it therefore seems agreeable to reason, that from the same cause the salival glands should sometimes separate a greater quantity, which the patient is continually spitting out. Hence perhaps it is that Hippocrates says, *Frequent spitting, when attended with other signs, denotes a frenzy* m. And a little after he condemns spitting in phrenitic patientsⁿ. But when the patients spit upon the bystanders, it is a sign of great raving, and is a most sure mark of a delirium in people of a good behaviour; for

^k Epidem. 3. ægrot. 4. Charter. Tom. IX. p. 232. ^l Ibid. ægrot. 4. post tempestatem, p. 298.
^m Secreatus frequens, si sane et aliud quoddam signum adfuerit, phreniticum. *Prorrhet. lib. i. textu 6. Charter. Tom. VIII. p. 704.*
ⁿ Ibid. textu 12. p. 708.

for if even a fierce answer from a person of a mild disposition is of bad import in diseases, much more is such an indecent spitting. For it is justly laid down by Jacotius as a rule to the physician, where he comments upon the text before cited, “ That all the voluntary “ actions which are either deficient or redundant, beyond what is usual and decent, are signs of a “ frenzy o.”

Trembling.] When we treated of a febrile trembling at §. 627, it was demonstrated, that an imperviousness of the arterial fluid to be moved through the vessels of the encephalon ought to be reckoned amongst the causes of trembling. When therefore such a trembling is observed in a frenzy, we know that the free influx of the spirits into the nerves destined to move the muscles is disturbed; so that one moment that influx is destroyed, and the next it is restored, without the influence of the will; and therefore it is evident, that the effect of the disease penetrates almost to the medulla of the brain itself. Hence the reason is evident, why a trembling is condemned by physicians as a fatal sign in a frenzy. Hippocrates says, *Violent fits of trembling are destructive in phrenitic patients* p. For that he does not here understand that a violent frenzy ceases when tremblings arise, is sufficiently evident from another place q, where he condemns tremblings as fatal in a violent frenzy. Hence likewise, as we observed in the comment to §. 700, tremblings, with an obscure delirium or desipency, were by Hippocrates esteemed as signs of the patient’s being violently frenetic; and in a fatal frenzy, concerning which we treated when we spoke of eruginous vomitings, those palpitations or tremblings attended throughout the whole body in the second day.

The faces and urine intercepted or white; catching at things that seem to fly before the eyes.] Concerning all these, see what has been said in the commentaries to §. 734 and 772.

Convulsions.] It was proved in the comment to §. 712,

o In Coac. Hippocr. p. 519. p Phreniticæ vehementer affectiones tremulæ desinunt. Prærrhet. lib. i. textu 9. Charter. Tom. VIII. p. 706.

q Coac. Prænot. n° 92. ibid, p. 857.

§. 712, that convulsions are almost constantly fatal, when they follow after the signs of an inflammation in the brain have preceded; because then we know that even the medulla of the brain itself is affected. In those patients lately mentioned from the Epidemics of Hippocrates, convulsions attended, and they likewise died phrenitic.

A dryness or dustiness of the eyes.] We know that the eyes are cleansed and moistened by a thin dew exhaling from the smallest arterial ducts; while at the same time, by the frequent motion or winking of the eye-lids, all the particles of dust which may have been gathered from the air about the eye, are prevented from adhering: but when this exhaling dew or moisture is wanting, the eyes appear dry and rough; and as anatomical injections teach us, that a great number of small arteries are dispersed through the eyes from the branches of the internal carotids belonging to the encephalon, we then justly conclude, that the like dryness obtains in the internal parts of the head, the larger vessels being distended with impervious blood, and the smaller ones compressed and deprived of their most thin juices. Add to this, that such patients lie stupid, with their eyes fixed and wide open, the eye-lids winking hardly at all; whence the reason is evident, why the eyes then appear dry and dusty, a circumstance always of the worst import. See what has been said concerning the sorrowful looking eyes of patients lying ill of putrid continual fevers, in the comment to §. 734.

A gnashing of the teeth.] It is a common thing for some people to clash or grind their teeth together in their sleep. Otherwise it denotes an involuntary and convulsive motion of the muscles moving the jaws, and is therefore justly esteemed a bad sign in diseases. Hence Hippocrates carefully observes, *That a gnashing of the teeth portends madness and death, unless it has been customary to the patient from a child. But if it happens in a delirium, it is then very pernicious*^r.

Want

^r Dentium stridor portendit insaniam et mortem, nisi quis a puero consueverit. Si vero etiam delirans hoc agat, jam valde perniciosum est. *In Prognostic. Charter. Tom. VIII. p. 604.*

Want of thirst, the common forerunner of convulsions.] For if the patient is not thirsty, when at the same time the causes of thirst are violent in this disease, we know that the common sensory is wholly disturbed, and that therefore the worst consequences are to be feared. See what has been said concerning this symptom in the comment to the second paragraph of §. 772.

A perpetual changing of the symptoms.] We know that the brain is that corporeal organ, on which the exercise of the voluntary motions, and actions of the external and internal senses, depend: and since by an alteration in each of the nerves by external objects, distinct changes of thought are produced; and, in like manner, in each of the muscles an arbitrary motion may be excited by the influence of the will; it is evident, that all and each of the nerves have a distinct origin in the brain. An inflammation therefore being seated in the interior parts of the head, and by that means the motion of the fluids being disturbed through the vessels of this or that part of the brain, very different symptoms may be excited, according as various origins of the nerves are thus affected. Thus wonderful phantasms or appearances seem to be offered to the eyes of delirious patients, a great variety of sounds is perceived, as also of smells, tastes, &c. Wonderful changes are observed, likewise, when the origins of the nerves are changed from the internal morbid disposition of the common sensory. When therefore there is a perpetual change of these symptoms, we know that the common sensory is more and more disturbed, and that the disorder is propagated to other parts of the brain. Hence the reason is evident why Hippocrates says, That *phrenitic patients are at the beginning but moderately disordered; but if the symptoms frequently change, it is a bad sign*^s: and soon after he adds^t, That *frequent changes in phrenitic patients denote convulsions*.

^s In phreniticis per initia moderatum esse, sed crebro permutari, malum id est. *Prorrhetic. lib. i. textu 12. Charter. Tom. VIII. p. 708. Coac. Prenot. n° 94. Ibid. p. 857.*

^t Crebræ in phreniticis permutationes, convulsivæ. *Ibidem, textu 27. p. 716. Coac. Prenot. n° 103.*

convulsions. And therefore Galen, in his commentaries to this text, says, *There is therefore a true transfluxion in the brain itself, producing in every different part of it a different effect; the disease indeed retaining the same disposition in all the parts affected, but varying the symptoms themselves according to the particular nature of each^t.* And he assures us, he has often seen a number of such phrenitic patients, who were indeed always delirious, but in a different manner, according to every kind of the animal-functions. For at one time they raged with anger, soon after they were joyful; at one time they audaciously attacked the bystanders, and at another time were frightened at them, &c. But it is evident enough, from what has been said, why this disturbance of the symptoms is to be esteemed of bad import.

The subsiding of an ulcer or wound before swelled.] This is one of the worst signs not only in a frenzy, but likewise in other diseases, as it denotes a deficiency of life. (See the comments to §. 158, n^o 7. §. 403, n^o 1. and §. 432.) Hence Hippocrates, in his prognostics, enumerating those things to which the physician ought to attend in order to foresee what is about to happen in diseases, advises him to consider whether the patient happened to have a wound or ulcer either before or in the disease: For if that ulcer became dry, with a livid or pale colour, he presaged the approaching death of the patient.

A frenzy from a peripneumony is fatal; from the small-pox, very bad; that arising from the iliac passion is fatal also.

A frenzy from a peripneumony is fatal.] For then the frenzy usually arises because the blood cannot pass through the inflamed lungs from the right ventricle of the heart, nor the venous blood freely empty itself into the right auricle and ventricle; and therefore the

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blood

^t Vere igitur in cerebro ipso transfluxio est, alias in alia quapiam ipsius parte orta, speciem quidem affectionis fervans, sed pro parte affecta symptomata ipsa permutans. *Ibidem*, p. 716.

blood will be obstructed in its return from the head by the jugular veins, while the arteries in the mean time continue to propel their blood to the head: thus the vessels of the brain will be distended, and its functions disturbed; and unless this inflammation of the lungs can be soon resolved, the patient perishes in a short time. But since a frenzy usually follows only in the worst kind of peripneumony, the reason is evident why it is then so fatal. Hence Hippocrates says, That a frenzy from a peripneumony is bad ^u. And in another place ^w, for the patient to lift up his hand before his face, or to be catching at imaginary flies, gathering of straws, or pulling at the bed-clothes, (all which we have already seen are the signs of an approaching frenzy) he condemns as bad and fatal signs in a peripneumony. But in another place he seems to make a milder prognosis, where he says, *But whatever peripneumonic patients have no purgation or discharge upon the critical days, and if they continue phrenitic after the fourteenth day, there is danger that they will become suppurative* ^x. But here it is to be observed, that he uses the word *παρὰ φανής*, which he often intends to signify a slight kind of delirium.

That from the small-pox is very bad.] When the fever which attends the first or contagious state of the small-pox before the eruption causes a violent delirium or frenzy, it is indeed always dangerous; yet there is great reason to hope, that, when the small-pox breaks out, it will cease together with the other symptoms. But when a fierce or violent delirium continues after the eruption of the small-pox; or arises, if it did not attend in the stage of infection; the danger is greater, as there may then be reason to suspect that the variculous pustules attack the interior parts of the head. But when, in the confluent small-pox, a most severe putrid fever is kindled by a return of the almost gangrenous matter into the blood, and occasions a frenzy; it is very

^u Aphor. 12. sect. vii. Charter. Tom. IX. p. 297.

^w In Prognostic. Charter. Tom. VIII. p. 606.

^x Quicunque vero peripneumonici non purgati sunt judicatoriis diebus, sed mente moti quatuordecim dies effugerunt, periculum est, illos suppuratos fieri. *Coac. Prænot. n° 396, ibid. p. 875.*

ry evident, that the extremely tender vessels of the brain must be soon destroyed by the putrid and acrid humours driven through them with a rapid motion, so as to leave no hopes remaining. But concerning all these particulars, we shall treat hereafter in the History of the Small-pox.

That proceeding from the iliac passion is fatal also. It will be made evident hereafter, when we come to treat of an Inflammation of the Bowels, that in this disease, watchings, fevers, and even convulsions, are excited by the most intense pain. But the disease is never carried to so great a height, but a fatal gangrene may soon after follow, whereupon all the pain suddenly ceases, and the patient is generally delirious. Hence Hippocrates says, *That a vomiting, hickup, convulsion, or delirium, following after the iliac passion, is bad* ^v.

An inflammation fixed for a time, and producing a roughness of the fauces, spreading upward, creates a mortal frenzy, in which the patient is very busy with his hands and fingers.

The celebrated Boerhaave has frequently observed such cases, in which, after a slight quinsy disappearing without any good signs, a fatal frenzy has arisen when by a bad translation the inflammation of the fauces had seized the head, from whence he makes this prognosis; though there are some passages, pointing out the same, to be found in the works of Hippocrates ^z, (as we said before in the comment to §. 772.) Thus, “In acute diseases, when the parts about the fauces are painful, contracted, small, and suffocating; or if the patient has yawned, and is not easily able to close or shut his mouth; these presage a delirium, which turns into a dangerous frenzy.” And in his Coan prognostics ^a we read, “That a moderate roughness

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“ of

^v Ab ileo vomitus, vel singultus, vel convulsio, vel desipientia, malum. Aphor. 10. sect. vii. Charter. Tom. IX. p. 296.

^z Prorrhet. lib. i. textu 11. Charter. Tom. VIII. p. 707.

^a No 168. ibid. p. 867.

“ of the fauces, with fruitless endeavours to go to stool, pains in the forehead, the patients feeling with their hands or fingers with pain; frenzies which are increased from these causes, are difficult to cure.” And in another place ^b; “ That pains in the head, with a fever, in a quinsy, without good signs, are pernicious.” But in such patients a constant delirium arose *with study, or attention of mind*, which Hippocrates tells us is much more dangerous than that which happens *with laughter*, as we said before in the comment to §. 700, because from thence the patient is greatly fatigued. Thus Boerhaave saw a noble virgin, who endeavoured day and night to pass a thread through the eye of a needle till she fainted. Another patient was continually collecting knots together without intermission. I have seen many such cases, wherein the patients have, till death, continued laborious and employed with the strictest attention of mind in the works of healthy people.

Those frenzies in which the patient is very busy about the necessaries of life, are the worst.

This prognosis is given us by Hippocrates ^c in his Coan Prognostics, and has been already mentioned in the comment to §. 700. By necessaries here we understand those things which are absolutely required to support life, and to cure this dangerous disease. Thus if such patients abstain from sleep for fear of being murdered, refuse to lie in a dark place, or reject all food and drink for fear of being poisoned, &c. it is sufficiently evident, that every thing must then turn out for the worse. This kind of frenzy seems to have been pointed out by Hippocrates, when he says, *A patient dies of a frenzy in the following manner: In this disease they are perpetually delirious from the corruption of the blood, and its agitation with an extraordinary motion. And when their reason is gone, they take nothing proper which is offered to them. But in process of time they waste*

^b N^o 372. *ibid.* p. 872.

^c N^o 100. *Charter.* Tom. VIII. p. 857

waste away, as well from the fever, as because they take no nourishment ^d.

§. 775. **T**HE bodies of those who have died of a frenzy being opened, have been found with the meninges of the brain inflamed, or a gangrene, abscess, or sphacelus of the brain, or some acrid corroding ichor or matter.

Nothing conduces more to promote the art of healing, than, after a careful observation made through the whole course of the disease, to examine into the dead body after death, to discover what parts were affected, and what changes have happened to them. For by this means it is best discovered, whether any error has been committed or not in the diagnosis, prognosis, or cure of the disease. But it appears from the observations of the generality of the best physicians, that such signs have appeared in the bodies of those dying of a frenzy, as manifestly denote an inflammation to have preceded. A virgin ill of an acute fever, with a continual and fierce delirium, being brought into the hospital, after two days time she expired. The skull of the diseased being opened, the celebrated Boerhaave shewed his auditors the pia mater of the brain all over red and inflamed; and even the cortical part of the brain itself, which is naturally of a grey colour, appeared as red as if its vessels had been injected by the art of the anatomist with a red matter. If we consider the accounts given us by Bonetus in his *Sepulchretum Anatomicum*, and the other writers of observations, it will appear from many instances, that a suppuration, gangrene, and sphacelus, which are the usual ways wherein a violent and irresolvable inflammation terminates, have been found in the bodies of those dying in a frenzy. But even sometimes the

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^d Ex phrenitide ita perit. In hoc morbo perpetuo delirant, quum nimirum sanguis corruptus et extra consuetam agitationem motus sit. Quumque desipiant, nihil quidquam essatu dignum eorum, quæ offeruntur, accipiunt. Procedente vero tempore marcescunt, tum a febre, tum quod nihil alantur. *De Morbis, lib. i. cap. ultimo. Charter. Tom. VII, p. 549.*

membranes of the brain are found thick, hard, and in a manner schirrhous, especially in those people who have been often phrenitic, or subject to an inflammation here. Thus in the man who had several times a violent frenzy for the space of two years, and afterwards perished of an abscess in the liver, the dura mater was found strongly adhering to the skull, and much thicker and stronger than usual, its falciform process appearing almost of a bony consistence throughout its whole length. The pia mater was in strength and firmness like the dura mater of healthy people, very easily separable on all sides from the subjacent brain, and thick set with numerous blood-vessels. The brain itself was much drier and firmer than usual, but in its ventricles was found a quantity of serum^e. But the acrid and corroding ichor, which is here sometimes found, arises either from matter degenerating and corrupting by long standing, or from the gangrenous corrupt matter. Moreover, when these very tender vessels are stuffed up with impervious humours, or compressed by the distension of the adjacent vessels, the humours being urged with a swifter motion by the fever, there is danger of their breaking and extravasating their contained fluids, which by stagnating may easily be converted into an acrid ichor.

§. 776. **F**ROM all which it is obvious, that the proximate cause of a true frenzy arises primarily from a true inflammation of the pia and dura mater; but that the proximate cause of a symptomatic frenzy is an inflammation of the like kind, arising from a translocation or flux of the inflammatory matter on the meninges of the brain.

At §. 771, we defined a frenzy, not from understanding the proximate causes constituting this disease, but from such symptoms or appearances as are allowed, by the general consent of all physicians, constantly to attend in this disorder; namely, “ That it

“ is

^e Acad. des Sciences, l'an 1706. Mem. p. 662, 663.

“ is a fierce and perpetual delirium, from the brain
 “ itself originally affected, joined with an acute con-
 “ tinual fever.” But after every thing that relates to
 the diagnosis and prognosis has been carefully considered,
 it seems that we may safely conclude, agreeable to
 the present aphorism, that an inflammation originally
 raised in the meninges of the brain constitutes the
 proximate cause of a true frenzy. But this will evi-
 dently appear, if we consider what has been said con-
 cerning the signs of a present inflammation at §. 382.
 For a red tumour, pain from the distended vessels,
 hardness and resistance in the affected part, great
 heat, pulsation, fever, and its consequences, teach us
 that an inflammation is present. It is indeed true,
 that some of these signs manifestly appear only when
 the inflammation is seated in some external part of the
 body; yet if we consider the appearances which have
 been proved at §. 772, to precede a true frenzy, it
 will appear that all these signs attend in this disorder.
 For the redness of the face and eyes, the turgescence
 and fierceness of the countenance, with a protube-
 rance or staring of the eyes, and dripping of blood
 from the nose, (see §. 773, no 4.) sufficiently prove,
 that not only the larger vessels are distended with red
 blood, but likewise that, by entering the dilated ori-
 fices of the smaller vessels by an error of place, it he-
 sitates or stagnates in their narrowest extremities:
 whence it is concluded, as we there demonstrated,
 that the like disorder takes place also in the interior
 parts of the head. Another sign of inflammation is
 afforded from the great heat and pulsation within the
 head, which is often so violent that the skull seems to
 the unfortunate patient ready to split. The acute con-
 tinual fever, and the preceding inflammatory disposi-
 tion, are still further confirmations of what has been
 said: so that there seems to be no room to doubt in
 this respect.

But the great pain in the head seems to teach us,
 that the membranes in the brain are affected, and es-
 pecially the dura mater, which, performing the office
 of an internal periosteum by lining the skull, firmly
 adheres

adheres to it on all sides by the vessels which it sends into and receives from the bone, and therefore it cannot be distended by an inflammatory tumour without causing a great distraction of those small vessels: add to this, that the arteries of the dura matter, being furnished with elastic strong coats, more powerfully resist the distending humours. Perhaps also a pain is excited in the pia mater from the same cause. But the cortical substance of the brain itself may be corroded, cut, &c. without pain; as is evident from what has been said, concerning fungous excrescences of the brain, in the History of Wounds of the Head. But the medullary substance of the brain lying deeper, and more out of the way, is affected more slowly, and seems immediately to cause convulsions, as we likewise proved in the same place. But since a violent pain in the head precedes a true frenzy, it is evident the meninges of the brain are affected, before its functions are as yet much disturbed. But as the pia mater invests the brain, and enters into all its inequalities or furrows, it is evident that an inflammation of it must soon affect the brain with the like disorder, since they are not only contiguous, but continuous to each other by the vessels which they mutually send out; and it appears from what has been said under the preceding aphorism, that the truth of this is likewise proved by observations made on the dead bodies of phrenitic patients. But in the mean time it is evident enough, that an inflammation of the pia mater is alone sufficient to disturb the motions of the brain, inasmuch as the cortical substance of the brain receives no vessels but from that membrane; and in the comment to §. 701, it was proved, that an obstruction of any kind impeding the influx, transflux, and efflux of the humours through the brain, or too great a velocity, or a stagnation of them, may produce a delirium of the worst kind.

When therefore, from the meninges of the brain first and originally affected with an inflammation, a fierce and constant delirium arises, it is called a True Frenzy: But if there are first manifest signs of an inflammation in other parts of the body, and

and then the phlogistic matter is translated from those parts to the meninges of the brain, it is to be called a Symptomatic Frenzy, as we observed before more at large.

§. 777. **E**VERY thing that can produce an inflammation in these parts, may therefore perform the office of the nearest or proximate cause (§. 772.)

For hither belong all the causes of inflammation, of which we treated when we reckoned them up in the history of that disorder; more especially if such other causes likewise concur as determine the general causes of inflammation towards the head; such as, being in the sun, watchings, anger, &c. of all which we treated in the comment to §. 772.

§. 778. **B**UT from hence likewise we have a true diagnosis both of the genuine and symptomatic frenzy.

For if a fierce and perpetual delirium arises after a great pain and violent heat within the head, joined with an acute continual fever, it is a True Frenzy; but when signs of an inflammation appear first in some other part of the body, and afterwards affect the head, it is a Symptomatic Frenzy.

§. 779. **T**HE cure of this disorder requires an attention to the following particulars.

Varices, or an hæmorrhoidal flux, are beneficial.

A flux of the bowels is also good.

A pain in the breast or feet, or a violent cough supervening, often terminate the disease.

A frenzy is likewise often solved by an hæmorrhage.

It was the principal care of the ancient physicians
dili-

diligently to remark the changes which happened in diseases; and by that means to learn, by a faithful observation, the ways in which they tend to health or death, that they might be afterwards enabled to promote the former, and prevent or retard the latter, by a suitable method of cure. Hence we find Hippocrates so operose and exact in the semeiotic part of medicine; and thus he has increased and dignified the art of healing with so many practical rules, which have been approved and confirmed by the general acknowledgement of physicians through so many ages; which yet he seems to have collected from observation in diseases, as will appear to any one who compares his Aphorisms with what he has given us in his books of Epidemics. Even Celsus well remarks, that this was the origin of physic, when he treats concerning the various sects of physicians: *For the medicine was not found after the reason, but the reason was sought for after the medicine was discovered*^f. Among the more modern physicians, Sydenham has followed the same method of practice, and has alone promoted physic more than the numerous physicians before him, who indulged themselves in the most subtle speculations, endeavouring to explain the most latent causes of diseases *a priori*. But this great physician has confessed, that when he took upon him to discover the nature or genius of a disease, some patients were lost, who might have been saved if he had been first acquainted with the genuine method of curing those diseases; but this is unavoidable, and every one knows, That *medicine, or the art of healing, which distinguishes what is pernicious from what is salutary, arose partly from the health or recovery of some patients, and partly from the destruction of others*^g. Nor are these disadvantages avoided by those men who, being furnished with specious but insignificant hypotheses, chalk out to themselves, upon so weak a foundation, a method of healing in diseases; while in the mean time, by neglecting the attentive obser-

^f Non enim post rationem medicina inventa est, sed post inventam medicinam ratio quæsitæ est. *In Prefatione, p. 9.*

^g Sic medicinam ortam fuisse, subinde aliorum salute, aliorum interitu, perniciofa discernentem a salutaribus. *Ibid.*

observation of diseases, they stick as much in the clay as ever, and are no more able to relieve their patients, after many fatal events, than at first.

Therefore, before we treat of the cure of a frenzy, it will be convenient for us to see what a faithful observation has taught to be useful in this disease.

Varices.] From what has been hitherto said concerning a frenzy, it is sufficiently evident, that in this disease the vessels of the encephalon are charged with too great a quantity of blood driven too powerfully into them; and therefore, in the cure, every thing will be serviceable which lessens the too great quantity of the blood, and derives its impetus from the head towards other parts, such as we before recommended in the cure of a febrile delirium at §. 702. But a varix is a preternatural distension or dilatation of a vein, and happens most frequently in the lower parts of the body, where it is difficult for the blood to ascend by reason of its perpendicular course and distance from the heart. When therefore the veins of the legs become varicous in phrenitic patients, we know that a quantity of the blood is retained in them, whence less blood is returned to the heart, and the superior vessels are so much the less filled in proportion. Moreover, we often render the veins in some measure varicous by art, to abate the increased velocity of the blood, by applying moderate ligatures upon the limbs to compress them, as we observed before in the comment to §. 691. And the same method is often used likewise to suppress too profuse hæmorrhages, as we observed in the comment to §. 743. The reason is therefore evident, why varices are serviceable to phrenitic patients. Hippocrates^b placed so great hopes in varices, that he expected a termination even of madness from them. But whether or not besides the forementioned effects of varices, to be understood from the human fabric, the swelling of the veins in the legs may affect the head by the action of some regimen or rule in the body, (concerning which, see §. 701.) remains a question. The following aphorism of Hippocrates seems to intimate

^b Aphor. 21. sect. vi. Charter. Tom. IX. p. 26e.

mate some such thing, *Those who are bald have no varices happen to them: But in those who being bald have varices happen, such have their hair grow again*. They who ridicule this text as altogether absurd, as they can make out no consent or communication betwixt the hairy scalp of the head and the distended veins of the legs; let such try whether they can better understand, why about the age of puberty the hairs grow out about the private parts, when at the same time the spermatic veins often swell and become varicous; and in males the beard appears, and the voice is changed, &c. while again all these appearances are often altered in those who are castrated. It is sufficient to a practical physician to know what he may expect, good or bad, from varices appearing in the course of diseases, even though he does not distinctly understand the connection betwixt the preceding cause and the concomitant or consequent effect. Hippocrates^k elsewhere remarks, that varices are not to be expected in the legs before the age of puberty.

An hæmorrhoidal flux.] For the hæmorrhoidal vessels and carotid arteries convey the blood in opposite directions; whence a revulsion may reasonably be expected from the head, when there is such a flux. It is well known that many people are accustomed twice a-year, and some much oftener, to a discharge of blood from the anus. But if this evacuation does not happen about the time when the piles used to bleed, they are generally afflicted with a vertigo, ringing in the ears, and the like symptoms, which denote the brain to be slightly affected. Medical history informs us even of epilepsies, madness, and fatal apoplexies having ensued, when this accustomed discharge of blood from the anus has been intercepted either spontaneously, or by an imprudent treatment. Thus, ^l *Alcippus having the piles was forbid being cured of them by Hippocrates: but after he was cured, he was seized with madness*.

ⁱ Qui calvi sunt, illis varices non fiunt. Quibus vero calvis existentibus varices succedunt, illi rursus capillati fiunt. *Ibidem*, Aphor. 34. p. 270.

^k Coac. Prænot. n^o 512. Charter. Tom. VIII. p. 882.

^l Alcippus hæmorrhoides habens curari prohibebatur: curatus vero, mania correptus fuit. *Epidem.* 4. textu 51. Charter. Tom. IX. p. 331.

madness. But again Hippocrates tells us, it is a good sign for the piles to follow after an apoplexy or madness, (see the comment to §. 702.); and he remarks, that those diseases are this way terminated. From all which it is evident, how much good may be expected from the hæmorrhoidal flux in diseases of the head.

A flux from the bowels is good.] We have already seen at §. 594, that the material cause of a fever being subdued, dissolved, and rendered moveable by the fever itself, is sometimes expelled from the body by stool; and therefore in this respect a flux from the bowels may be useful in a frenzy. But, as we there observed, such a flux of the bowels ought to appear after the signs of concoction have preceded; since the same symptom is of bad import, and sometimes even fatal, in the beginning of fevers, as we said at §. 741. But in the present disease, a flux of the bowels may be not only useful in discharging the morbid matter; but also, by emptying the vessels in the abdominal viscera of the humours which flow thither, and lessening the resistance to the impulse of the blood, it may happily divert the impetus and quantity of the humours from the head, which is a thing of the greatest moment in the cure of a frenzy. But the observations of the ancient physicians teach us, that a flux of the bowels is useful in those diseases, in which the vessels of the head are too much distended. Thus we have seen in the comment to §. 720, that a diarrhœa is useful to such as have an inflammation of the eyes. *Such things as shake the head, and excite a noise in the ears, produce an hæmorrhage from the nose, and bring down the menses in women; or by other ways, when a burning heat follows along the spine. But such things as are inclined to excite a dysentery have likewise the same effect^m.* From which text it seems evident, that the termination of those diseases, wherein the vessels of the head are too much distended, was expected by Hippocrates, as well from a flux of the bowels, as from hæmorrhages. Hi-

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^m Quæ caput concutiunt, aurium sonitus facientia, hæmorrhagiam faciunt, vel mulieri menses deducunt, tum alias, tum si secundum spinam arbor conquinatur. Æque autem et (hæc) dysenterica. Coac. Prænot. n^o 165. Charter. Tom. VIII. p. 861.

ther likewise seems to relate another text, namely, That *the pulsation and pains which run along the neck according to the course of the blood vessels, in fevers, is terminated in a dysentery*ⁿ. But in another place, he remarks the wonderful consent or intercourse betwixt the head and the bowels reciprocally, of which we took notice before in the comment to §. 722. “ In those “ who have bilious stools, the flux ceases when they “ become deaf; and again, bilious stools remove deaf- “ nefs when that has preceded.” But Galen^p remarks in his comment to this text, that we are not here to understand a confirmed deafness, which is often very difficult to cure; but only such a deafness as happens on a sudden in fevers. From all which it is evident, that much good may be expected from a flux of the bowels in diseases of the head, and that therefore Hippocrates^q has judged it to be beneficial for a dysentery to follow after madness.

Pain in the breast and feet, &c.] When we treated of the symptoms of a frenzy at §. 772, it was observed to appear, from the most certain observations, that an inflammation arising in some part of the body, however remote from the head, might yet leave the place of its first residence, and by a dangerous metastasis be transferred to the head; and we there likewise enumerated those signs which indicate when such a disorder is to be feared. It will not therefore seem strange, that sometimes a metastasis should, on the contrary, be made from the head towards other parts, and that frequently to the great relief of this dangerous disorder; more especially if the derivation is made, not to any of the viscera, but to the thighs, legs, or other parts most remote from the head. Hence Hippocrates says, *The pains which descend to the lower parts of the body are easily tolerable*^r. But that diseases of the head are sometimes transferred to the breast, seems to

ⁿ In febris pulsus et dolor secundum venam, quæ est in collo, in dysenteriam finitur. *Ibid.* n^o 125. p. 858.

^o Aphor. 28. sect. iv. *Charter. Tom. IX. p. 150.*

^p *Ibidem.*

^q Aphor. 5. sect. vii. *ibid.* p. 294.

^r Dolores, qui ad internas delabuntur partes, toleratu faciles. *Prophet. lib. i. Charter. Tom. VIII. p. 781.*

to be pointed out in another place of Hippocrates, which runs thus : *When any of the superior parts are affected, a pain arising in the hips, thighs, or knees, as also an asthma, terminates all such disorders* ^s. Even in madness itself he seems to expect some relief from such a derivation, when he says, *A hoarseness with a cough arising in madness, makes a crisis or termination of the disease* ^t.

What has been here advanced from Hippocrates is likewise confirmed by the histories of the patients which he gives us in his Epidemics. Thus in Herophontes ^u, whom he assures us escaped from a most dangerous fever beyond expectation, there were watchings with deafness on the fifth day of the disease, and a delirium on the sixth day: but on the eighth day, there was a pain in the groin, and afterwards pains invaded each of the legs; whereupon the patient perfectly returned to himself, had a very easy night, and the urine, which was before thin and black, appeared now better coloured, and with something of a sediment. But after the disease had been terminated by an imperfect crisis on the ninth day, in five days more the fever returned acute with deafness; but on the third day after from the return, a pain invaded the legs, whereupon the deafness abated. Thus also in the virgin who lay in the porch of the temple of Abdera, afflicted with deafness and a delirium in an acute fever, he observes, that on the twentieth day of the disease a pain arose in the feet, but at the same time the deafness and delirium ceased; and he observes, that this pain in the feet still continued after the patient was perfectly recovered in all respects from the fever ^w.

Likewise by an hæmorrhage.] We have several times observed before, that a bleeding from the nose is to be understood by the term *hæmorrhage*, when it is not expressly said to proceed from some other part;

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because

^s Quodcunque superiorum partium doluerit, dolor ad coxendices, vel ad genua, vel asthma hæc omnia solvit. *Epidemic. 2. Charter. Tom. IX. p. 191.*

^t Ex mania ad rauceidinem cum tussi (sit) abscessus. *Coac. Prænot. n^o 484. Charter. Tom. VIII. p. 880.*

^u Epidem. 1. ægrot. 3. Charter. Tom. IX. p. 103.

^w Epidem. 3. ægrot. 7. *ibid.* p. 301, 302.

because blood is this way most frequently evacuated in acute diseases. But since in a frenzy the arteries of the head are greatly distended by the quantity and impetus of the blood, the reason is evident why an hæmorrhage from the nose so frequently happens in this disease. For most of those signs which presage an hæmorrhage from the nose (see §. 741.) are present in a frenzy. But at the time when there is an hæmorrhage from the nose, the blood, driven in a great quantity through the trunks of the carotid arteries, will be more copiously derived to the branches of the external carotid, where there is now a less resistance; and therefore an opportunity will be given to the impervious blood hesitating by an inflammatory thickness in the vessels of the encephalon, where now there is a less impulse of the fluids urging behind, to be repelled back into the larger trunks (see §. 400, n^o 1.); and thus may be obtained a resolution of the inflammation. But since anatomical injections teach us, that branches of arteries are dispersed through the internal parts of the nose from the internal carotids; if such small arteries are opened, and discharge their blood, a revulsion will be made immediately from the parts obstructed and inflamed. But concerning the signs which usually precede such a salutary hæmorrhage from the nose, we treated before in the commentaries to §. 741, where we considered every thing remarkable relating to this matter.

There are moreover many instances in medical history of frenzies cured by a spontaneous hæmorrhage from the nose. Zacutus Lusitanus was even bold enough to make such an artificial evacuation, when he had the care of a young captain in the army, of a plethoric habit and square make, afflicted with a violent frenzy. For he ordered one, who stood by, and used to quiet his raving by sweet singing, to thrust a quill, split into many points like a star, up to the root of the nose, and there forcibly to turn it round; which being done, there ensued a most copious hæmorrhage from the right nostril, with such good success that the patient recovered from the most dangerous disease, being

being afterwards succeeded with a sweat and flux from the bowels ^x.

But it is to be remarked, that critical sweats have been sometimes observed salutary in a frenzy, either alone, or attended with an hæmorrhage from the nose. Therefore Galen tells us, *That a good sweat terminates a frenzy, especially if it flows copiously and warm from the head, while the other parts of the body sweat at the same time. Otherwise also a frenzy is certainly terminated by an hæmorrhage from the nose*^y. Thus we read in Lucian^z, that the phrenitic Abderites (see §. 773.) had a termination of their fever about the seventh day by a copious hæmorrhage from the nose; and that in some a plentiful sweat, arising about the same time, had the like effect.

§. 780. **A** TRUE frenzy requires the most speedy application of such remedies as are able to remove the inflammation raised in the arteries of the brain.

We have seen before at §. 776, that a true frenzy is really an inflammation in the meninges of the brain, and that sometimes it is even extended into the cortical substance of the brain itself. But it appears from what has been said in the history of Inflammation, that there are three ways of its termination; namely, by resolution, by suppuration, or by a gangrene and sphacelus. But it is evident enough, that a resolution only can be admitted in this place; since a suppuration formed is almost constantly fatal, and much more so is a gangrene or sphacelus. It is indeed true, that in the history of Wounds in the Head, it appeared from many observations, that the substance of the brain might be injured by wounds, suppuration, putrefaction, corroding medicines, &c. so as to consume a considerable part of it, the patient not only surviving, but frequently

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all

^x Zacut. Lusit. Observ. 12. p. 22.

^y Judicat et phrenitidem sudor bonus, et precipue si ex capite multus. et calidus fluxerit, sudante simul reliquo corpore. Fit etiam aliter, quod per narium hæmorrhagiam phrenitis firmiter (βεβαιως) judicetur. De Crisibus, lib. iii. cap. 3. Charter. Tom. VIII. p. 430.

^z In Caput. Quomodo conscribenda sit historia. Tom. I. p. 657.

all the functions of the brain being perfectly restored; but then, in these cases, there was a passage for the corrupted parts to be evacuated. But when a suppuration follows a true frenzy, the confined matter, rendered more acrid by standing, may in a little time destroy the pulp-like substance of the encephalon. But for the dispersing an inflammation, as was said at §. 386, it is necessary for the humours flowing to be mild, their motion sedate, and the obstructing cause to be slight, or not over compact, and but of small extent. But since a true frenzy is accompanied with an acute continual fever (see §. 771), there is not only an impetuous motion of the humours, but likewise a sudden degeneration of them is to be feared; and at the same time the impervious blood is more and more impacted into the narrow extremities of the vessels, whence the difficulty of a resolution will be increasing almost every moment. Add to this, that the obstructed vessels swelling and dilating will compress the adjacent smaller vessels, and after expressing their contained fluid, will occasion their sides to grow together, whence for the future remain incurable injuries of the functions of the brain. Hence therefore it is evident, that this disorder requires the most speedy application of the most powerful remedies, since it is in its own nature so dangerous, and so quickly fatal.

§. 781. **T**HESSE remedies are chiefly such as have been directed for the cure of inflammations in general, having a regard to the following particulars. Blood-letting must be used plentifully, from a large orifice; or from several veins at once, as in the foot, neck, and forehead. Diluent antiphlogistic decoctions, with nitrous medicines, are to be plentifully exhibited. Then cooling purges are to be given, with plenty of nitrous diluent drinks. Clysters of the like kind are to be used, with the addition of laxatives. The anus is to be fomented, and the piles
are

are to be rubbed with the leaves of a fig-tree, &c. or to be evacuated by leeches. Lenient and cooling mouth-washes and gargarisms are to be frequently used. The nostrils, eyes, and ears, are to be fomented with vapours; and the head is to be shaved. These being premised, and the disorder still remaining, recourse must be had to opiates, pediluvia, mild epispastics, and cupping-glasses to the lower extremities. The body is to be refreshed with an air moderately cool, and kept in an erect posture.

When we treated of the cure of an inflammation by a resolution at §. 395, we reckoned up the following indications, namely, To prevent any further injury to the vessels: To remove that which they had already suffered: To render the obstructing matter fluid, and of a mild nature; for a mild disposition of the humours is necessary to disperse an inflammation: Or, lastly, if the obstructing matter could not be reduced to a state of fluidity, To lessen the impulse of the humours urging behind, so that the obstructed vessels by their natural contractile force might press back the obstructing particles into the larger vessels. But then it appeared from what was said at §. 396, 397, 398, 400, that to answer all these intentions bleeding was necessary. Therefore,

Blood-letting must be used plentifully, &c.] For it was proved at §. 141, that, to repel back the obstructing matter impacted into the vessels, nothing is more efficacious than a copious and sudden bleeding. But thus also the great heat of the internal parts of the head, which usually precedes a true frenzy (see §. 772.) is lessened, as we demonstrated in the cure of Heat in Fevers at §. 691, *et seq.* and likewise the too great fullness of the vessels is at the same time removed. Asclepiades indeed condemns blood-letting in this disorder; affirming, that to let blood in such patients is in a manner to murder them^a. But, as Celsus^b well observes,

^a A. Corn. Cels. lib. iii. cap. 18. p. 150. Ibid.

erves, a frenzy never attends without a violent fever; and it was the opinion of Asclepiades that blood ought never to be taken but in the remission of a fever, for which reason he has condemned blood-letting in this disorder: but concerning this, consult what has been said in the comment to §. 610, with a view to abate the violence of the fever by blood-letting. But in the mean time Aretæus^c seems to be against plentiful blood-letting in this disorder, namely, because he feared a syncope, to which he supposed a frenzy more particularly inclined beyond other diseases. Perhaps the reason of this might be, because the brain was esteemed a cold and bloodless part, and therefore he imagined profuse blood-letting to be less useful in the diseases of it. And indeed the following passage seems to confirm this: *But a vein is to be more boldly opened, if the disease arises not in the head, but in the præcordia, where the principle of life is seated: but the head is the seat and origin of the nerves and senses, and rather draws blood from the heart than distributes it to other parts^d, &c.* The chemists have boasted themselves capable of doing wonders in this disorder by a narcotic sulphur of vitriol, which, they say, is able to command a truce at least, if not to make an entire cure of the frenzy. But until they have shewn us that they can by the same means remove an inflammation in the hand or in any other part, no prudent person will rely upon them in this doubtful, and often suddenly fatal, disease.

But (as we declared at §. 779.) it appeared from observations, that a flux of blood in the piles, in a direction perfectly opposite to the head, is beneficial in phrenetic patients; and likewise that an hæmorrhage from the nose has frequently terminated this disorder; therefore both these methods of nature are imitated by physicians, when they open a vein in the foot, neck, or forehead; and even sometimes when the frenzy is very violent, they open several veins at the same time.

^c Lib. i. de Curat. Morb. Acutor. cap. i. p. 73.

^d Verum tamen audacius vena solvenda est, si a præcordiis, non a capite morbus oriatur: ibi enim vitæ principium est. Caput vero sensus nervorumque originis locus est, sanguinemque potius a corde trahit, quam aliis distribuit, &c. *Ibid.*

to make a sudden depletion and a powerful revulsion, suffering the evacuation to be continued till the patient faints; which Galen esteems as the greatest remedy in the most violent inflammations, ardent fevers, and intense pains, as we said before at §. 141. But, as we there observed, so bold a blood-letting ought never to be put in practice, but when the physician is present to feel the pulse, while the blood is flowing from the orifices of the veins, that he may determine how far the evacuation may be permitted with prudence and safety.

Blood-letting is therefore justly esteemed by Tral-lian^e the first and greatest of all remedies for the cure of a true frenzy, and for the prevention of it when about to happen; and this author was the more solicitous to discharge a great quantity of blood at once, because it was often troublesome to repeat the operation upon these phrenitic patients, frequently raving: therefore he discharged as much at the beginning, and as equal to the intention, as if he had bled the patient a second time; and he assures us this was performed with the most happy success, by opening a vein in the forehead.

But since it appears that a frenzy is most happily terminated by a copious hæmorrhage from the rupture of an artery in the nose, therefore some physicians have ventured to open an artery with the lancet, thereby to make a sudden evacuation and most powerful revulsion of the quantity and impetus of the blood from the encephalon. In this case they generally chuse the temporal artery, because it is visible enough by its pulsation, and may be conveniently compressed against the subjacent skull after the bleeding is over so as to suffer the wound to heal with safety. But for the particulars to be observed in arteriotomy, you may consult Dionis^f and other writers of operations.

Diluents, &c. and afterwards cooling purges, &c.] Concerning these, see what has been said under the cure of inflammation in general at §. 396, *et seq.*

Clysters

^e Lib. i. cap. 13. p. 48.
demonst. 7. p. 407, 408.

^f Cours d'Operations de Chirurgie,

Clysters of the like kind, &c.] For these hasten the operation of the cooling purges which were taken by the mouth; and, by relaxing the vessels of the intestines, they make a revulsion of the quantity and impetus of the humours from the head. At the same time they have likewise a happy effect in abating the violence of the fever, as we observed in the comment to §. 610; whence they are serviceable in every respect.

The anus is to be fomented, and the piles are to be rubbed, &c.] For we have already seen, that a flux or discharge by the piles is useful to phrenitic patients, (§. 779.); and therefore we endeavour to promote the piles, by relaxing these parts with fomentations and clysters: but when the piles once begin to appear, they are to be rubbed with the rough leaves of a fig-tree till the blood begins to distil from them, or else they are to be opened by the application of leaches. See what has been said in the comment to §. 702.

Mouth-washes and gargles, &c. the nostrils, eyes, and ears, to be fomented with vapours.] For thus all the branches of the external carotid dispersed through these parts are relaxed, and by that means the quantity and impetus of the blood is diverted from the internal parts of the head. At the same time the nostrils, by moistening the vessels there distributed, are well disposed to a salutary hæmorrhage. See what has been said concerning the application of emollient remedies to the head in the cure of a Febrile Delirium at §. 702; as also what has been said upon this subject in the cure of an Ardent Fever at §. 743.

The head is to be shaved.] For by shaving off the hair, the whole skin of the head is rendered extremely perspirable; which effect seems to have been expected by Coelius Aurelianus g. The head is certainly hereby agreeably cooled, and the patient sometimes perceives a considerable change; and the alteration thus made is so considerable, that Aretæus^h apprehends danger from it, when he observes, That if the hair is long, it may be first cut half length; but if short, it may be cut close to

g Acutor. Morb. lib. i. cap. 10. p. 30.
Morbos. Acut. lib. i. cap. 1. p. 30.

^h De Curatione

to the skin. But it appears from the observations of Sydenhamⁱ, that there is no danger in this respect; for he assures us, that he always advised this, and with very good success. But after the head was shaved, he defended it from the external cold by a cap, without applying any kind of emplaster to the naked head. Some indeed recommend such plasters; but all oily and fat substances adhering to the skin lessen the perspiration, which in the present case is required to be free. Shaving of the head is likewise recommended by Celsus^k for the cure of a frenzy. But it is evident enough, that this operation is often difficult when the patient is violently raving; and therefore it is better to perform this when the signs denote that an approaching frenzy is to be feared.

These being premised, and the disorder still remaining, recourse must be had to the use of opiates.] After the several remedies before-mentioned have so far diminished the impetus of the humours, and rendered them so thin and dilute, that one may reasonably hope to remove the inflammation seated within the head by a mild resolution; and when the signs teach that the disease begins to abate, though the delirium or watchings, which are so bad in this disease, still continue; then, and not before, the use of opiates may be called in, as Sydenham well observes^l. But it is customary for physicians to begin with the milder anoydnes; and to proceed gradually to the stronger, if the former are not sufficient. See what has been said concerning the use of these in the cure of a febrile delirium in the comment to §. 702.

Washing of the feet, with the application of mild epispastics and cupping-glasses, &c.] For by all these the vessels of the lower parts are relaxed, or by a gentle irritation a greater quantity of humours is derived towards these parts, and consequently a revulsion is made from the parts above. See what has been said, concerning such things as make a revulsion of the impetus of the blood towards other parts, in the comment

ⁱ In *Schedula Monitor. de novæ febris ingressu*, p. 660. cap. 18. p. 150.

^l *Seçt. i. cap. 4. p. 81.*

^k *Lib. iii.*

ment to §. 396, n^o 4; as also in the comment to §. 702, concerning the use of the same remedies. But in the mean time care must be taken not to apply to the lower parts such things as are able by an acrid stimulus to increase the motion of the humours throughout the whole body.

The body is to be refreshed with an air moderately cool, and kept in an erect posture.] How useful this is in moderating the too great violence of a fever has been said at §. 610; and it was proved in the comment to §. 698, that the heat of the bed, and the confined air, are extremely pernicious in all diseases in which there is already too great an inflammatory heat. But an erect posture of body hinders the blood from urging with so great violence against the head; for we see in healthy people, when they have lain down in an horizontal posture for some hours, the head swells, and the tumour soon disappears when they sit upright any time. It frequently happens, that phrenitic patients, raving in a very bad manner while they are confined down in their bed, become perfectly calm and easy when they sit up in a chair with an erect posture of the body, and but moderately clothed. Sydenham so highly valued this method of treating the patient, that he every where inculcates throughout his works, that frequently the whole success of the cure in acute inflammatory diseases depends thereupon: and in his later writings, published in his advanced years, he further confirms this practice; and tells us, that it is more especially necessary in a frenzy. “For, in this case, neither bleeding, nor covering the patient thinly in bed, nor the use of any kind of cooling liquors, will remove the fever, without sitting up in the day-time, inasmuch as the heat of the surrounding air, included in the bed by the coverings, puts the blood into too violent a motion, and the supine posture of the body hurries it violently to the head m.”

These are the remedies which we are taught to be serviceable in this disease, from its own nature, and their salutary use; and from the speedy application of which,

m In *Schedula monitor. de novæ febris ingressu*, p. 659, 668.

which, the cure of an inflammation raised in the meninges of the brain may be expected by resolution.

But it seems necessary to be observed, that when the violence of the fever is abated, the delirium, coma, great weakness, and other symptoms still continue, and denote that the functions of the brain are as yet disturbed. But recourse must not then be had to blood-letting, purges, and the use of other weakening remedies, to remove such remains of this severe disease; for they usually give way in time to a mild diet, rest, an erect posture of body, &c. For after the inflammation is resolved, the vessels which have been too much distracted by the impulse of the humours urging against the obstructed parts, do not immediately recover their former dimensions; whence the equable motion of the humours thro' the vessels of the encephalon often continues disturbed for a considerable time, until the distracted fibres by degrees recover strength, and restore to the vessels their pristine firmness. But since the very tender vessels of the encephalon, namely, those of the pia mater and cortical substance of the brain, are destitute of elastic coats, the reason is evident why such symptoms often continue for a long time after a true frenzy. See what has been said upon this subject in the comment to §. 397, where it was proved that the fibres recover their pristine force by their own proper form, when the distracting causes either cease or are diminished, and while in the mean time the powers of nutrition are restored.

§. 782. **B**UT if the frenzy arises from some other inflammatory disease, it must be first considered whether the nature of the disease will permit the forementioned method of cure (§. 781.); if not, it must be treated in the manner suitable to that particular disease, always adding derivative and topical remedies.

This is an admonition of the greatest consequence, in practice; namely, In the cure of a symptomatic
VOL. VII. I i frenzy,

frenzy, to attend to the primary nature or genius of the disease, from whence the frenzy took its origin. For, as we have just now seen, the cure of a true frenzy requires plentiful bleeding, and sometimes to be boldly repeated, together with a copious evacuation from the bowels with antiphlogistic purges. But this method of treatment is not adapted to the cure of all acute diseases; and there are sometimes observed epidemic fevers, which, though of an inflammatory kind, will nevertheless not suffer repeated bleeding without damage: moreover, it has appeared in such fevers, that even the symptomatic frenzy cannot be relieved by violent and repeated evacuations; but that afterwards this symptom has by degrees disappeared, as the original disease itself has gone off. Such were the epidemical continual fevers described by Sydenhamⁿ to have spread in London in the years 1673, 1674, and 1675. For although the severe head-ach, pains of the sides, and the pleuritic blood, were sufficient signs that more than a small degree of inflammation attended these fevers; yet Sydenham observes, that repeated bleeding did not relieve the patients. But since in these fevers there usually happens a very ready translation of the morbid matter to the head, he therefore substituted the use of clysters, instead of repeated blood-letting which the nature of the disease would not admit; and thus he very happily cured a symptomatic frenzy which attended in these fevers, namely, after opening a vein, and injecting one or two clysters, by giving the patient spirit of vitriol dropped in small beer, or an ordinary drink. But he assures us no other method was successful in this fever^o. The like was also observed by him^p in another kind of epidemical fever, in which there was a strong tendency to deposit the febrile matter on the head: and he likewise remarked, that as soon as a frenzy ensued from such a translation, there then no longer remained any signs of the fever. But he likewise observed, that neither would this kind of fever bear repeated blood-

ⁿ Sect. v. cap. 2. p. 772, &c.
 Schedula Monitor. de novæ febris ingressu, p. 651, &c.

^o Ibid. p. 289.

^p In

blood-letting; for which reason, after once opening a vein, he gave a cooling purge, repeating it every other day to the third time, and likewise exhibiting a mild diacodiate draught at the hour of sleep, after each dose of the purging medicine. But he did not here give spirit of vitriol, being less proper in diseases where cathartics are required. But he observes, that if a frenzy once invaded in this disease, it could not be suddenly removed, nor was it safe to attempt its cure by bleeding or purging repeated beyond the bounds before prescribed^a; but if a due regimen was observed, the symptoms usually went off in time of their own accord. Thus also, to remove the symptomatic frenzy which attended in the small-pox, Sydenham^c made use of a method of cure not at all convenient in other cases: for in a lad, ten years old, who by the weight of bed-clothes, and the use of heating medicines in the first stage of the small-pox, had the eruption not only checked, but also was so raving, that he could scarce be confined in his bed; in this case, he immediately gave an ounce of the fyr. de meco-
nio; which having no effect, he ordered the like dose to be repeated after the space of an hour; and the symptoms not yet abating, he repeated the same dose, till the lad had taken two ounces and a half; whereupon those disturbances were happily allayed, and the patient afterwards did well.

These are sufficient to demonstrate, how much the treatment of a symptomatic frenzy may vary according to the different nature of the primary disease from whence it is derived. But since in such diseases there is always danger of the febrile matter being translated to the brain, it can never be prejudicial to use such medicines as make a derivation towards other parts, and to diminish the too great heat in the head by topical remedies. When therefore we know from the apparent nature of the epidemic disease, or from the signs enumerated at §. 772, that such a metastasis is to be feared, it will be convenient to inject clysters, to relax the lower parts by warm bathing and fomentations,

^a Ibidem, p. 660.

^c In Dissertatione Epistolari, p. 466.

tations, to irritate them with epispastics, and to divert all the impetus of the humours from the head by an erect posture of body; to shave the head, apply oxycerate to the forehead, fix cupping-glasses to the legs and thighs, &c. that by all these endeavours of art a symptomatic frenzy may be prevented, or at least that it may be kept from increasing if it has already invaded. For all these remedies, or at least the chief of them, have been successfully used by Sydenham in a symptomatic frenzy, although he varied his method of cure according to the different nature of the primary disease.

END of the SEVENTH VOLUME.

